

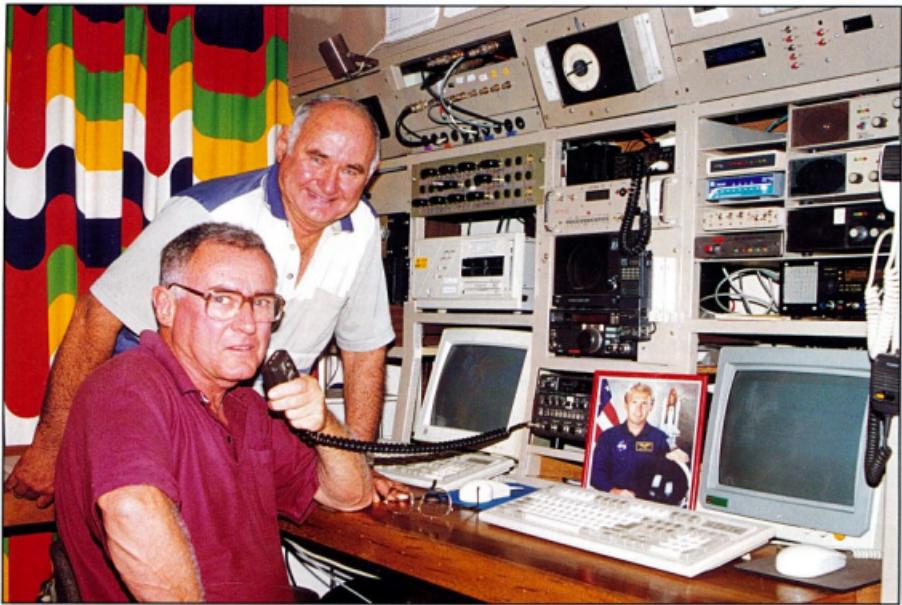
# Amateur Radio



June 1998

Volume 66 No 6

*Journal of the Wireless Institute of Australia*



*Full of the latest amateur radio news, information and technical articles, including...*

- Review of the Icom IC-746 HF+6+2 m Transceiver
- A Junkbox Regenerative Receiver
- Review of the Yaesu VX-1R Miniature Hand Held

**Plus** lots of other articles, news and special interest columns



Australian  
Communications  
Authority

Our reference: X97/1360

Mr Neil Penfold  
President  
Wireless Institute of Australia  
PO Box 2175  
Caulfield Junction VIC 3161

**Delegation to the World Radiocommunication Conference 1997**

Dear Mr Penfold

I am writing this letter to indicate the value of the contribution made by Mr Wardlaw at the World Radiocommunication Conference 1997 (WRC-97) held in Geneva last year from 27 October to 21 November 1997.

Representation of Australian organisations at such major conferences provides a clear benefit, I believe, to the organisation concerned in ensuring that your interests are reflected in the discussions and the outcome. Mr Wardlaw's efforts were also much appreciated by the ACA especially in relation to his work on Fixed Satellite and Mobile Satellite Service allocation and sharing issues.

All the delegates worked hard to achieve Australia's overall objectives and as a result we were successful in the having the majority of our proposals approved. As you may know these proposals were aimed at facilitating improved spectrum management overall, as well as to specific users such as your own organisation. Without such support and efforts by delegates from both industry and government such results would be much more difficult to achieve.

As a result of the decisions of WRC-97 there will be much work on changes to satellite communications and on a range of other services. The agenda for WRC-99 has been established and the ACA looks forward to the continued valuable contributions from Mr Wardlaw as we work towards developing common proposals with the Asia Pacific Telecommunity for WRC-99.

Yours sincerely



Roger Smith  
Senior Executive Manager  
Planning and Standards

**24 March 1998**

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**Cover** Tony Hutchison VK5ZAI (seated) and Doug Tamblyn VK5GA prepare to speak to Adelaide-born astronaut Dr Andy Thomas VK5MIR on board the Russian MIR space station. See VK5MIR stories on pages 14 and 26 of this issue.

(Photo courtesy of the Murray Pioneer)

### CONTRIBUTIONS TO AMATEUR RADIO

Amateur Radio is a forum for WIA members' amateur radio technical experiments, experiences, opinions and news. Manuscripts with drawings and/or photos are always welcome and will be considered for possible publication. Articles on computer disk or via e-mail are especially welcome. The WIA cannot assume responsibility for loss or damage to any material. A pamphlet, "How to Write for Amateur Radio", is available from vk3br Communications Pty Ltd on receipt of a stamped, self addressed envelope.

### BACK ISSUES

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### PHOTOSTAT COPIES

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### DISCLAIMER

The opinions expressed in this publication do not necessarily reflect the official view of the WIA, and the WIA cannot be held responsible for incorrect information published.

## Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs; that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

## Wireless Institute of Australia

The world's first and oldest National Radio Society Founded 1910

Representing the Australian Amateur Radio Service - Member of the International Amateur Radio Union

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## Viewpoint

# Editor's Comment

## Repair or Recycle?

Once, many years ago (about 40, actually), as a spare time source of a little extra income, I used to repair TV sets around the neighbourhood. In those days of valves and monochrome it was a statistical fact that the average TV set needed some fault or other to be fixed about twice a year. Half these faults could be fixed by replacing a valve.

Valves, or vacuum tubes, were by far the least reliable device in the set, although fortunately the big vacuum tube in the front was surprisingly long-lived! Some sets were more accessible than others to work on, but most repairs involved less than one hour's work; and repair was very seldom not feasible.

Time went by, and the up and coming transistors began to appear (in the early 60s), at first in audio circuits, but ultimately everywhere except for the picture tube. Colour arrived in 1975 (in Melbourne and Sydney) and circuits became much more complex.

With the arrival of integrated circuits it was possible to squeeze much more circuitry into much less space, so "fixability" diminished. That didn't matter so much because solid-state circuits were much more reliable.

Our own main colour TV set is 22 years old and has never needed more than a twiddle of the touchy focus pot until just recently; solder joints to a power resistor became crystalline and came adrift.

There's not much future in TV repairs now! Our 22 year old will probably "hang in there" until digital TV makes it obsolete in a few more years.

The same sort of evolution has applied to amateur equipment, particularly transceivers. In the 1960s it was feasible to build one's own. If something went wrong with it, one fixed it himself (or herself).

Now, with all the digital "bells and whistles", almost any fault-finding or fixing is a factory job. If it's more than a few years old it becomes a "boat anchor".

More recently we find that personal computers are part of life for many of us. Not only is maintenance virtually impossible at component level, but the latest hardware is obsolete in a couple of years and not even good as a "boat anchor".

Where do we go from here? I don't know, but the future of garbage dumps seems to be assured!

Bill Rice VK3ABP

Editor

ar

## ■ News

# WIA News

Prepared, researched and compiled by  
David Thompson VK2NH  
Federal Public Relations Co-ordinator

## WIA Monitoring 70 cm Moves in the United States

The WIA is treating as serious threats to amateur frequencies in the United States. There are new reports that the 70 cm amateur radio band in the USA is under attack by commercial interests. There is also reportedly a chance that if the commercials are successful in their claims, the changes could spread worldwide with adverse ramifications for radio amateurs everywhere.

The ARRL has advised US radio amateurs (Bulletin ARLB030) that the US Land Mobile Communications Council (LMCC) has asked the FCC to immediately reallocate 420 to 430 MHz and 440 to 450 MHz from the US federal government to the Private Mobile Radio

Service (PMRS) on a primary basis. Amateur radio in the USA now enjoys the use of 420 to 450 MHz on a secondary basis, and the 430 to 440 MHz segment is an international allocation.

The 70 cm band is the second most popular of the amateur radio service's VHF/UHF allocations, with substantial FM repeater and other operation in the 440 to 450 MHz segment and a variety of uses in the 420 to 430 MHz segment.

On hearing of the news, administrations in other countries are acting to see that the same is not happening in their regions. One is the RAC which represents Canadian amateurs. Representatives of that organisation say

they are not aware of any similar initiative in Canada. Canadian radio amateurs use 430 to 450 MHz on a secondary basis. The 420 to 430 MHz band is not available to Canadian amateurs; it was reassigned to the Mobile (primary) and Fixed (secondary) services several years ago.

The FCC has called for comments on the LMCC's petition for rule making with the Federal Communications Commission. The petition is designated RM 9267.

While the rule making is currently a domestic US issue, there could be international consequences if approved in whole or in part.

Canadian amateurs have been advised not to take action at this time. RAC is monitoring the situation and consulting with the ARRL and IARU. RAC will advise of any action needed from the Canadian amateur radio community to assist in warding off the threat.

The Wireless Institute is being vigilant on the issue with the Executive, headed by President Peter Naish VK2BNP, looking at the situation closely. Peter said, *"If there is a threat to the frequencies in this country the WIA ACA Liaison Committee will jump into action very quickly to safeguard amateurs' rights to continued use of the spectrum".*

## Automatic Position Reporting System for Amateur Radio Finally in Australia

As part of the Wireless Institute of Australia's plans for activities during the Year 2000 Sydney Olympic and Paralympic Games, the WIA Sydney 2000 Olympic Committee is helping introduce APRS to Australia.

The Committee, which has been formed under the auspices of the NSW Division to prepare the image of amateur radio for the Games, has committed itself to developing the system here in Australia in time for use at the time of the Games.

The Automatic Position Reporting System, or APRS, was used in the ATLANTA Olympic Games in 1996 to provide accurate reporting of runners positions on the marathon course.

This was perhaps the single most visible use of amateur radio in the last decade, showing amateur radio technology to 179 countries simultaneously.

The Wireless Institute of Australia NSW Division's Sydney 2000 Committee is planning activities for the period around the year 2000 Olympic and Paralympic games. The Sydney 2000 committee quickly identified APRS as THE technology to develop for possible use in the 2000 games.

Once identified, the process of informing Australian users about APRS has begun. Clubs initially in the Sydney Metropolitan area have been invited to hold an APRS information night where

members of the Sydney 2000 committee come to present a multi-media presentation on the subject. So far in excess of 100 amateurs have seen this presentation.

Chair of the Sydney 2000 Committee, David Thompson VK2NH, said, *"The APRS technology is an exciting innovation which shows that amateur radio is alive and experimenting. It is at the forefront of technology and this is no exception. APRS is just one of many things the Committee is planning for amateur radio for the Year 2000 and the Games".*

Discussions are taking place at the moment with Olympic planning authorities as to the implementation of APRS and its use during the Games. It is also expected that the position reporting system will take its place all over Australia as a useful device for amateurs and will be used by groups like WICEN for events and exercises for which they will provide the communications.

"APRS is one of the few technologies that cannot be replaced with the Internet or Cellular Phone", says Darryl Smith VK2TDS who brought details of APRS back from the United States last year after presenting a paper at the annual ARRL Digital Communications Conference in Baltimore, Maryland. Darryl has been appointed to the WIA NSW Sydney 2000 Committee and is assisting in plans the Committee has for the Sydney 2000 Olympics and Paralympics.

## Federal AGM Complete

All business in the 1998 Federal Annual General Meeting has been completed in a teleconference.

The conference which reached right around Australia via a telecommunications hookup, featured the adoption of the 1997 Annual report and the appointment of the auditors for 1998.

The new executive, comprising Peter Naish VK2BPN as President, Martin Luther VK5GN, Wally House VK6KZ and Neil Penfold VK6NE, has begun the job of managing the affairs of the Institute.

One of the first tasks will be the preparation of a business plan to take the WIA into the 21<sup>st</sup> century.

## Move to Speed Up the Advent of Digital Radio

In a move described as a 'challenge' by the International Telecommunications Union (ITU), a non profit consortium has been set up in order to produce a world standard for digital broadcasting. Digital Radio Mondiale comprises broadcasters, network operators, transmitter and receiver manufacturers, other hardware and software industries and standards and regulatory bodies.

The aim of the DRM is to produce a system for short-wave, medium-wave and long-wave broadcasting that would be the single, tested, open non-proprietary, consumer-oriented digital broadcasting world standard.

The single world-wide standard is considered necessary to keep costs down and reach a mass market required to encourage broadcasters to move away from analogue systems currently used.

This action has been taken in response to the 1997 World Radiocommunication Conference which decided to give a green light to the adoption of spectrum-efficient techniques such as digital modulation techniques. WRC-97 took this decision given the imperative need to make room in the highly congested HF bands.

Broadcasters have a vital interest in adopting digital techniques. Most public broadcasters are operating large AM transmitter networks in short-wave, medium-wave and long-wave frequency bands which required huge investments but are facing a steady decrease of their

audience due to the better quality offered by other delivery mechanisms. The introduction of digital techniques for broadcasting in these frequency bands could revitalise the service and the networks could continue to be usefully exploited.

Implementation of digital radio for broadcasting is expected to allow operators to provide services which could compete successfully with current and future high-quality audio services. Digital broadcasting AM represents a net improvement over conventional analogue radio in that it will provide higher reliability, superior stereo audio quality comparable to that of FM, better protection against interference, greater area coverage with less power and easy-to-tune receivers.

The system would also have to be compatible with any digital and conventional analogue system either through dual-system receivers or a simulcast approach that would enable a smooth transition from analogue to digital. It would also have to take account of the different planning environment where the channel spacing differs among regions and frequency bands.

"The task is indeed a challenge", said Robert Jones, Director of the ITU Radiocommunication Bureau. "We must be able to deliver a standard which will respond to what the market demands and quality low-cost broadcasting is high on the list", he added.

## GB2RS Cancels 20 Metre Transmission

On the international scene, the Radio Society of Great Britain says that it has terminated its experiment with a 20 metre GB2RS bulletin service.

The RSGB spent last winter experimenting with an SSB voice bulletin transmission on 14.308 MHz.

It evaluated the results and found that a regular listenership cannot be established for such a service. GB2RS transmissions will continue on 1.990, 3.640, 3.650 and 7.040 MHz at their regularly scheduled times.

*/via RSGB*

## Hams Assist in Wake of Italy Mudslides

Italian radio amateurs have been active in assisting rescuers after devastating mudslides in southern Italy killed at least 91. According to news reports, fire-fighters in Sarno found one man alive at the base of a well near his house after he was spotted by an unidentified ham radio operator who called for help.

The mud has also washed out telephone service to the affected cities making ham radio an important communications pipeline. Authorities say that the mudslides were brought on by days of heavy rain.

*/via news reports*

## WRTC-2000

It is planned to hold the HF World Radiosport Team Championship 2000 in Croatia. We would have liked to have held it here in Australia to coincide with the Olympic Games, but it proved impossible to meet the 50 stations and antenna criteria. Croatia took up the gauntlet and, under the eye of the WRTC-96 committee, a new committee was formed with Tine S50A at the helm.

Creating, developing and implementing an event such as this is no mean feat. In 1996, 52 two-person teams competed in an 18 hour marathon during the IARU Contest. This Championship contest was held in the San Francisco Bay area. Australia was invited for the first time in 1996 and, under the Team leadership of Martin VK5GN, he and David VK2AYD operated as W6Z.

Teams are not selected by a Society or Club from the country they are going to represent. A Team Leader is selected by the WRTC Committee and he, or she, will select their partner. The qualification of the Team Leader is based on the position they achieved in contests from 1995 to 1999 in the CQWW CW and SSB, CQWPX CW and SSB, and the IARU HF CW/SSB contests. This gives a total possibility of 20 contest scores from which the 15 best scores will be selected.

To make this fair world-wide, the Committee took a cross section of logs from 1996 and broke it into Continents. Oceania represented 2.49% and in consequence qualifies for only one team.

WRTC-2000 will be a 24 hour contest and will coincide with the IARU HF Contest. There will be a four hour obligatory time-off period. As an addition to (but not within) the IARU HF Contest, CW and SSB simulated reception (pile-up tapes) will be added. All teams will listen to the same tapes.

The WRTC-2000 Committee are keen to hear from people interested in participating as a contestant and have asked that they send a formal application to the Committee. Details of this can be obtained directly from Tine S50A, e-mail address [tine.brajkic@guest.arnes.si](mailto:tine.brajkic@guest.arnes.si) or by e-mail (or on air 40 and 20 metres CW) from David VK2AYD at [davpil@midcoast.com.au](mailto:davpil@midcoast.com.au)

*[News item from David VK2AYD]*

## WIA Public Relations Co-ordinator

David Thompson VK2NH has taken up the position of Public Relations Co-ordinator for WIA Federal.

David comes to the Institute with a solid background, in the media (like many amateurs), as a broadcaster and journalist. He is currently employed in the production of publications, journalism and promotions as well as researching and writing speeches and the preparation of publicity materials. A Councillor for the New South Wales Division of the WIA, he is Chair of the Sydney 2000 Committee which is charged with preparing amateur radio for the Year 2000 Sydney Olympics and Paralympics.

In the belief that an organisation should be proactive and caring to its members in order to succeed, David has embarked on a study of the Institute, its needs and strengths and weaknesses. He has asked all members and non-members to contribute to this study. He believes in true representation and says, "The only way

we can achieve this is to find out what the members think. We also have to consolidate and nurture our relationships with the all important bodies such as the ACA".

One of the new initiatives is to introduce an easily accessed Federal WWW page which will exhibit the many facets of the WIA to those both at home and abroad. This will be designed to suit the WIA's image as the longest running amateur radio body in the world. The page will also be linked to other societies globally. It will concentrate on the welfare of amateur radio and its members while at the same time providing a wealth of information and representation of the Institute to amateurs everywhere. You will find out more about David's philosophy in the near future. He promises to "keep you informed".

You can contact David through the Federal Office, or by e-mail. His address is [dthom@penrithcity.nsw.gov.au](mailto:dthom@penrithcity.nsw.gov.au) **ar**

## TIME TO DEFEND YOUR BANDS AND HARD-WON PRIVILEGES

**420-450 MHz** is wanted by Australian commercial interests  
**RF emission regulations** threaten handhelds, mobile rigs, and suburban home stations, with bureaucratic limits

More of **7 MHz** is wanted by global broadcasters

## RENEW YOUR MEMBERSHIP RECRUIT NEW MEMBERS

### WIA action has:

- Cut the cost of licence fees
- Cut fees on beacons and repeaters
- Improved licence conditions
- Retained access to 50 MHz and 576 MHz; and more!

### The WIA maintains representation:

- At World Radio conferences
- To the ACA
- On the Radio Communications Consultative Committee

Strength in numbers - Subs help pay



Your  
Hobby

Your  
Voice

## ■ Equipment Review

# Icom IC-746 HF + 6 m + 2 m 100 Watt Transceiver

Reviewed by Ron Fisher VK3OM  
24 Sugarloaf Road  
Beaconsfield Upper VIC 3808

**Y**es, that's right! All amateur bands right through to two metres and with 100 watts output on all bands!

It seems that the IC-706 has grown up. Not only that, but you also have a transceiver with all wanted features including Digital Signal Processing and 100 plus memories. What more would you need in the shack?

For most amateur operators this single transceiver would take care of 99.9% of their operating requirements. Having said that, there is one thing you may not want to do with the IC-746 and that is use it mobile. You could, of course, but I, for one, would prefer to use an IC-706 with its diminutive size and removable front panel.

The IC-746 is primarily a base station but, as it requires an external 13.8 volt DC supply, it could be used mobile if you could find room to fit it in. Icom do not have a mobile mounting bracket to go with it so you would have to devise a mounting system to suit your vehicle; also, there is no remote control facility and the front panel is firmly fixed on with no chance to remote it. Of course, it would make a superb portable set-up.

Again I have enlisted the help of John Patterson VK3ATQ to provide some expert help with measurements, and comments on six and two metre performance.

### IC-746 Features and Facilities

At first sight, the IC-746 has a different appearance from most transceivers that we have become used to. The cabinet is almost square. This means that it will take up much less width on your operating

desk compared with most older transceivers. The actual dimensions are 287 mm wide by 316.5 mm deep and 120 mm high.

An important feature of the IC-746 is the solid construction. The transceiver is built into a specially designed diecast frame. It is divided into compartments which improve the shielding and rigidity. Construction is based on the earlier successful IC-756. The IC-746 weighs in at 8.9 kg.

The outstanding feature of the transceiver is the LCD. This measures a whopping 105 mm wide by 70 mm high and conveys an enormous amount of information to the operator. A quick look at the close-up photograph gives an idea of just what is available.

As mentioned before, the IC-746 has transmit capability on all amateur bands from 160 metres right through to the two metre band. The receiver has full

coverage from 30 kHz to 60 MHz, and then from 108 to 174 MHz. It's nice to see that Icom have provided receive capability between 30 and 50 MHz to allow six metre operators to check the MUF for openings.

The 108 to 174 MHz range includes all manner of interesting things to listen to, including the aircraft band. One feature carried on from earlier Icom models is the band scope feature. The IC-756 transceiver reviewed in an earlier issue of this magazine had a superb band scope facility. Unfortunately, the one in the IC-746 is not well implemented. I will have more to say about this in the "on the air" section of the review.

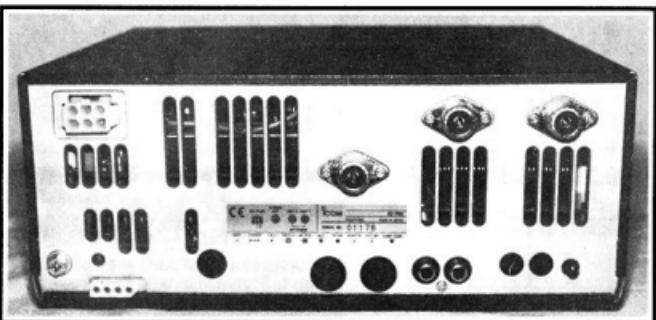
Naturally, the IC-746 has Digital Signal Processing to improve readability of incoming signals. It has three functions. One, noise reduction for use on all modes; two, automatic notch filter to eliminate heterodynes for SSB reception; and three, an automatic peak filter with selectable bandwidths of 80, 160 and 320 Hz for CW operation. The centre frequencies of these slots are also adjustable.

Another of the very nice features is the twin passband tuning. This enables the selectivity to be narrowed from both sides at the same time. You can watch the effect on a special segment of the main display.

Of course, the IC-746 is loaded with memories. There are 99 standard memories, two scan edge setting memories plus a call channel. However, it doesn't end there. There are five quick



Front view of the IC-746.



Rear panel of the IC-746.

"memopad" memories which can be expanded to ten, if required, via the menu system.

Each band selection button stores three different frequencies in a band stacking system and, of course, you also have two VFOs to add to the overall versatility of the transceiver.

The keen CW operator has not been forgotten either. There is an in-built four channel memory keyer with 50 characters. A multi function electronic keyer is also included.

There is a CW pitch control and the transceiver has full break-in capability. Add all of this to the above features and it adds up to very versatile operation.

Naturally, there is an automatic antenna tuner built in which works on all bands up to 50 MHz. The ATU has its own memory backup which allows frequencies to be pre-set.

## IC-746 On the Air

Connect up your 13.8 volt DC supply and an antenna, and away you go. As is usual, the LCD takes a minute or so to come up to full brightness but when it does you will see one of the clearest displays around. Both the contrast and the brightness are adjustable via the menu system.

There are three SO-239 sockets on the back panel of the IC-746 for multiple antenna connections. Two of these are shared between normal HF and 50 MHz antennas while the third, which is well separated (see back panel photo), is dedicated to the two metre amateur band as well as the 108 to 174 MHz receiver. Switching between the two HF sockets is controlled via a front panel button, or a

particular socket can be dedicated to any band or group of bands.

The tuning is typical Icom, that is very smooth. There are several tuning rates to choose from; one Hertz steps, ten Hertz steps and one kHz steps. However, this goes a stage further via the menu system where you can choose steps of 0.1, 1, 5, 9, 10, 12.5, 20 and 25 kHz. It is also possible to assign a particular step size to a particular mode.

A nice feature carried on from the IC-756 is the combination RF gain and squelch control.

Via the menu again, it is possible to set this single control as an RF gain only, a squelch control only, or a combination of both by using half the rotation of the control for each function.

Reports on the transmitted SSB signal were more complimentary than I have had for a long time with an Icom transceiver. There is a "tone" control for the transmit audio response which is not quite as elaborate as the one in the IC-756.

The IC-746 control allows the band pass to be shifted up and down slightly. Most listeners were unable to detect very much difference in either extreme of the setting. The curves of the response published in Fig 1 show why this is so. I recommend you set the menu to give maximum high frequency response and you won't go too far wrong.

The IC-746 is supplied with an MH-36 hand microphone and I also used an SM6 desk microphone which, as usual, was rated slightly the better of the two.

The IC-746 also has an RF speech processor to give the transmit audio a boost. John Patterson gives his opinion: "The processor worked well but the audio was not as 'punchy' as the reference transceiver. Close in, most liked the 746 but, for weak signal work, the reference transceiver was more readable." The processor is adjustable via a rear panel control but there is no metering to set the clipping level.

Talking about metering, the display gives bar graph metering for 'S' meter, transmitter power output, ALC and SWR. While transmitting, power, ALC and SWR can be monitored at the same time.

The receiver audio quality through the internal speaker was reasonable. The quality has a slightly hollow sound but an external speaker (an Icom SP3) produced a great improvement.

Now for a few comments on the operation of the DSP. The action of the automatic notch filter is excellent on SSB as is the peak filter on CW. In fact, the peak filter works so well that you might well find you can live without the optional CW filter. The noise reduction is another matter. It did make a small improvement copying CW signals through noise, particularly when used with the peak filter and the normal noise blinder. However, trying to eliminate noise from SSB signals was another matter.

I must be honest but I could not find a situation where an unreadable signal could be improved. I look forward to the next generation of Digital Signal Processing noise reduction.

Finally, let's look at the band scope. From the advertising literature you might get the idea that it works like the excellent band scope in the IC-756 (see the review in May 1997 *Amateur Radio*).

Table 1

|                 |     |     |      |      |      |      |      |      |      |      |       |
|-----------------|-----|-----|------|------|------|------|------|------|------|------|-------|
| MHz             | 1.8 | 3.6 | 7.1  | 10.1 | 14.2 | 18.2 | 21.2 | 24.0 | 28.5 | 51.0 | 146.0 |
| Pwr (watts)     | 120 | 115 | 110  | 110  | 107  | 105  | 105  | 100  | 100  | 95   | 95    |
| ATU (watts)     | 100 | 100 | 105  | 100  | 95   | 97   | 95   | 95   | 90   | 85   | na    |
| IC (amps)       | 20  | 18  | 19   | 17   | 18.5 | 17   | 20   | 21   | 19   | 18   | 17.5  |
| IC & ATU (amps) | 19  | 18  | 19.5 | 17   | 18.5 | 18   | 19   | 21   | 20   | 18   | na    |

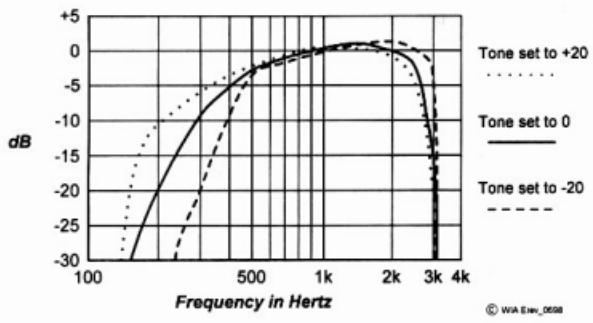


Fig 1 - Transmit audio frequency response of the IC-746 measured at 20 W output at 1 kHz USB on 14.2 MHz with no compression and no ALC reading.

Unfortunately, not so. It appears that, to build up a band picture, the receiver is put into a scan mode plus or minus from the tuned frequency. While this is happening the receiver goes dead. Not a sound. So you have a choice. Either listen to the signal coming in, or watch them coming in, but not the two together. So it will tell you what was there before you listen, but not what is there now. In short, forget about it.

## IC-746 On Test

The first test, as usual, is the transmitter power output and current drain. This time I have also included the power output measured through the automatic antenna tuner (see Table 1). This was done with the transceiver connected to a 50 ohm load which would produce minimum losses; no doubt the losses would be somewhat higher when matching a load other than 50 ohms. However, it gives a picture of what to expect. Overall the losses were very low and would pass unnoticed on the air. I have also noted the total current drain both with and without the ATU.

If you intend to run full output FM on 6 or 2 metres you would need to make sure that your power supply is capable of supplying the current for the time you intend to hold the button down. Many power supplies are rated at 20 amps for short peak output only, and may not be happy with a continuous 20 amp drain.

Transmit intermodulation distortion was checked out at -25 dB with 100 watts output on 14.2 MHz. This is an average

figure for a transceiver running from a 13.8 volt DC supply.

Next on the list was measurement of the transmit SSB audio frequency response. A quick look at the graph (Fig 1) will show why there was very little difference in quality reports with the "tone" control set to either extreme.

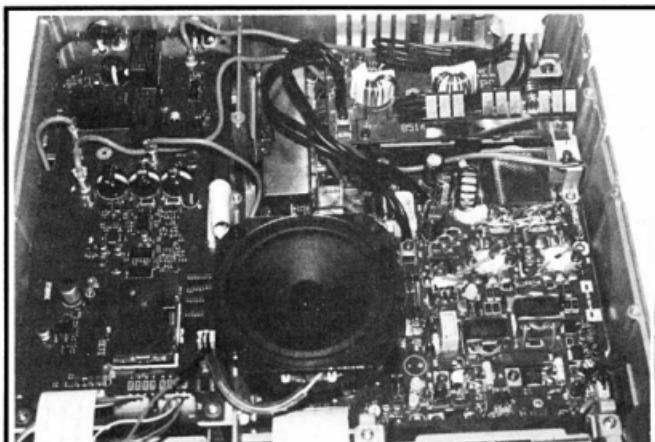
It might be a good idea to explain again how these graphs are produced. The procedure is very simple and most amateurs could try it on their own transceiver. The equipment required is a calibrated audio signal generator, an attenuator to reduce the output to microphone level, and a calibrated RF

power output meter with a full scale capability of about 30 watts. Feed the audio into the microphone input of the transceiver with the generator set at 1 kHz. Adjust the microphone gain to give about 20 watts RF output. Run the audio generator from 200 Hz to 3 kHz and plot the RF power output. Now simply convert this into dB relative to 1 kHz and there you are.

Compare your results with some of the curves I have included with reviews over the last couple of years and see how your transceiver shapes up. A final point, keep the maximum power output to below 30 watts for a normal 100 watt output transceiver to eliminate compression effects produced by ALC action and make sure the processor is switched off.

The next test was to check the audio end of the transceiver. Specified audio power output is rated at "better than 2 watts" at 8 ohms with no distortion figures mentioned. Here are my findings: maximum audio output at 8 ohms was 2.2 watts; and at 4 ohms it was 3.6 watts, but both had very high distortion figures. At 10% distortion (a figure often mentioned in specifications) the power output was 1.8 watts and, at a more normal listening output level of 200 milliwatts, the distortion had dropped to an excellent 0.3%.

Current drain was next measured for receive operation only. With no audio



Top view of the IC-746 out of its case. The PA is to the right. Note the rigid die-cast frame.

output, drain was exactly two amps; with full audio output it was 2.2 amps. With normal listening level audio (100/200 milliwatts) the increase in drain over two amps was not discernible.

## Receiver Sensitivity

Because of the very wide frequency coverage of this transceiver, and the undoubted interest that will be shown in the six and two metre performance, I called in the services of John VK3ATQ. John takes a keen interest in 6 and 2 metre DX and also has access to some very sophisticated test equipment.

First, the results on six metres. The noise figure was measured with no pre-amp, with pre-amp 1 and then pre-amp 2. With no pre-amp the noise figure was 4 dB; with pre-amp 1, 4.7 dB; and with pre-amp 2, 3.9 dB. The lower the figure the better, so it's interesting to see that, although the gain increases, the noise figure actually gets worse with pre-amp 1 and improves by only 0.1 dB with pre-amp 2.

Compared with John's usual transceiver, which has a noise figure of 2.5 dB with the pre-amp in, this means the difference between good readability and no readability. On two metres there is only one pre-amp. The noise figure with no pre-amp was measured at 5.4 dB, and with the pre-amp in, 1.8 dB. The latter figure is quite respectable but the figures show why the receiver sounded rather

deaf with the pre-amp switched out. As a comparison, John uses an Icom IC-275 on two metres and this has a noise figure of 1.5 dB, 0.3 dB better than the IC-746.

The absolute sensitivity on both bands was as follows. Six metres with no pre-amp, pre-amp 1 and pre-amp 2 measured -136, 135.5 and 136.3 dBm respectively, while on two metres 134.8 and 138.4 dBm were the respective figures.

John also had a few comments about the noise blanker action. With the beam lined up on the local power line noise, the IC-746 blanker reduced the hash from S7 to S2. However, his usual transceiver was able to bring it down to S0.5 which equates to several dB difference.

Sensitivity on the lower bands was, in all cases, equal to or better than the specified 0.16  $\mu$ V for 10 dB signal to noise ratio, and was very constant from band to band.

Next the S meter calibration and the pre-amp gain were measured. I did all of these tests at 14.2 MHz. The bar graph S meter is calibrated at S1, 3, 5, 7, 9 and +20, +40 and +60 dB.

The input required for a reading at these points with the pre-amps and the attenuator off was; 4  $\mu$ V, 5.5  $\mu$ V, 8.5  $\mu$ V, 20  $\mu$ V and 100  $\mu$ V for S9, and 700  $\mu$ V, 0.006 volts and 0.04 volts up to +60 dB. Pre-amp 1 has a gain of 10 dB and pre-amp 2 produces 24 dB gain.

The attenuator measured -20 dB and there is only one position available. The

overall gain of the receiver was very constant right across the amateur bands with no more than 2 dB variation noted.

The selectivity options available for the IC-746 are most interesting. No options were installed in our review transceiver. These things never are, unfortunately. I can therefore only speculate on their performance.

For the ardent CW operator there are two 500 Hz filters available, one for the 9 MHz IF, the other for the 455 kHz IF. However, the filters that I found most interesting are the wide SSB with 2.8 and 3.3 kHz bandwidth.

I enquired from Icom if these were installed would it be possible for the SSB transmit signal to be routed through them to improve the audio quality. However, they were unable to answer the question.

I would like to hear some high quality SSB; sometimes I think modern transmitters restrict the bandwidth a bit too much. There are also narrow SSB filters with bandwidths of 1.9 kHz at 9 MHz and 1.8 kHz at the 455 kHz IF. Installation of the optional filters appears to be quite easy with no soldering required. I hope that one day I might have the chance to give an opinion on their operation.

## IC-746 Instruction Manual

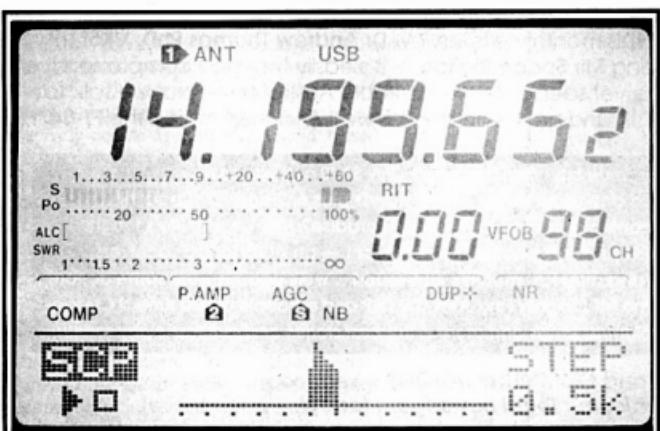
While the operation of modern transceivers is often fairly self evident, the time will come when you will need to read the book. As an example, there is no way that the "set" mode could be sorted out without reference to the manual.

The IC-746 manual runs to 85 pages and, apart from a few typographical errors, is very well written. There are clear instructions on the installation of the optional filters, the voice synthesiser unit and the high stability master oscillator.

Again, as seems usual these days, there is no technical description or circuit diagram supplied.

However, you will find more information in a concise form in the advertising brochure.

Again, a plea! Would it be possible to put a heavier cover on instruction manuals. They seem to get dog-eared very quickly.



A close-up of the LCD on the front of the IC-746

## IC-746 Conclusions

Overall, I found the IC-746 a very likeable transceiver. It offers a combination of facilities not easily available in any other transceiver.

Both the transmit and received audio quality in all modes is very satisfactory.

However, if you are looking for top performance on six metres you might have to look somewhere else. I guess you could consider a mast-head pre-amp.

The band scope is, unfortunately, a dead loss. It looks good in the advertising brochure but doesn't live up to its promise.

The list price of the IC-746 is \$3,700 but I have noted that dealers are advertising it for somewhat less than this. Dash in and pick up a bargain.

Our review transceiver was supplied by Icom (Australia) Pty Ltd. Further information is available direct from Icom or from any of their dealers throughout Australia.

ar

## Time, Gentlemen, Time!

**A**n Australian company, HPM Technologies, has launched the world's most advanced time system, Telechron.

It is pending an international patent and is a "wireless" clock. That is, the clocks are stand-alone units which are

automatically corrected for time at least four times per day from a paged radio signal.

Accuracy is better than 250 milliseconds.

*[From the Australian newspaper via Qnews]*

## High Charge for a Telephone Call

**O**wning a cellular telephone can get you arrested. Just as the trucker recently found out when he was taken into custody in Los Angeles because another driver thought his telephone was a gun.

According to news reports, the incident took place in late March. California Highway Patrol officers arrested the unnamed truck driver early in the morning on the southbound Interstate 405 freeway at Imperial Highway. This, after the driver of a sports utility vehicle reported the trucker had pointed a weapon at him.

Police say that the big-rig driver pulled out a cellular phone to make a call. The other motorist thought it was a gun and he called for help on his cell phone. The truck driver was initially charged with allegedly brandishing a firearm at another motorist. He was released after investigators determined the object was a cellular phone, not a gun.

*[via published and broadcast news reports and Amateur Radio Newsline]*



Radio and

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What an issue! This month we interview **Dr Andrew Thomas PhD, VK5MIR**, aboard the orbiting **Mir Space Station** — it's easily the most comprehensive interview we've yet seen of this remarkable Australian — plus we talk to **Dick Smith, VK2DIK** and get his life story as well! And then there's the **FT-847**!

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## ■ Equipment Review

# Yaesu VX-1R Miniature Hand Held Transceiver

Reviewed by Paul McMahon VK3DIP

47 Park Avenue  
Wattle Glen VIC 3096

### What Is It?

The VX-1R is a miniature hand-held dual band (2 m and 70 cm) FM transceiver. The receiver coverage is a very wide 0.5-1.7 MHz (Yes, the AM broadcast band!) and 76-999 MHz, with AM, FM Wide and FM Narrow modes selectable. As you will see from the photos the unit is very small (47 x 81 x 25 mm) and very light (125 gm). The review unit was kindly supplied by Dick Smith and had the serial number 71022680. Retail price is around \$499.

### First Impressions

Yaesu call it an Ultra-Compact/Micro-Miniature Dual-Band Transceiver with Wide-band Rx coverage. If you look at the photo with the VX-1R and a relatively recent Yaesu dual band hand-held it looks positively tiny. There is, however, very little that has been left out of this package. What it loses out on in the output power stakes is well made up for in newer battery technology, and the ability to effectively double as a broadcast band receiver. This small size is even more impressive when you look at the photo with the battery pack removed, as it takes up close to half the space in the case.

Again from the photos you will see that, even with the small size, the equally small number of controls helps to maintain an uncluttered look. There is basically one knob plus 10 buttons, including PTT, to control all the functions of this radio. Despite this it is still reasonably intuitive and with a little practice is easy to use. The display is well lit when needed and readable, showing all necessary information including

battery voltage, volume level, S meter, frequency, memory number, alphanumeric memory label, plus all the other usual items.

Audio quality and volume is remarkable given the size of the speaker. This is especially true in wide band FM Rx mode in the FM broadcast band. While it is not stereo it still compares very favourably with many of the portable broadcast sets available. One compromise with the 0.5-1.7 MHz range is that the display does not show the frequency; instead the S meter display is used as an analogue bar graph indication of relative position in the band.

This is not that big a problem as there are ten memories dedicated to this band which can store six character alphanumeric labels, making it very easy to select the required station.

One of the other first things to notice is the antenna conn-

ector. To fit in with the small size, Yaesu have used an SMA socket rather than the more common BNC socket. This will mean something to hams into microwaves, etc, but your average ham is unlikely to have sets of adapters for these connectors and they are not the sort of thing you will find as a standard component in the local stores. Luckily, Yaesu also have an optional SMA to BNC adapter which I would see as a must for most people who want to use external antennas.

On the subject of accessories there is really very little else to buy as the set has the tone decoder abilities built in that are



The VX-1R miniature hand-held dual band (2 m and 70 cm) FM transceiver.  
(Photo by Vicki VK3LT)

normally options with other rigs enabling CTCSS, DCS, etc with 'no more to pay'. One option that I would advise considering, however, is the Yaesu computer programming interface and application. This allows very flexible control and programming of the rig from your PC via a cable plugged into the earphone socket.

The packaging is pretty basic cardboard, but the manual and circuit diagrams are detailed and well written. It is also worth commenting on the supplied charger-cum-power-supply, as the one that came with it is obviously not the Yaesu one illustrated in the manual. In fact, the charger is a fully regulated multipurpose plug-pack (complete with voltage selector switch and multiple connector) set on the six volt position. The supplied power units will have the switch glued in the six volt position to avoid accidentally setting it on 12 volts and frying the set. While the set does tell you the battery voltage at switch-on, you would still have to have noticed that, and if you just plugged it in to charge without turning the set on it may be the battery

that will suffer. Despite this, the plug-pack looks well made. Having this as a general purpose unit could be useful, particularly as it has the mains pins orientated so that the normal problems of trying to connect a plug-pack to a low power point will not be a problem.

Much has been said, in various discussion groups on this set on the Web (it's been out in the US for a year or so), about the clip on the back being flimsy and not gripping well. I can see what people are talking about, but this would only be a problem if you want to wear the VX-1R as a semi-permanent belt ornament.

I had no trouble carrying this set wherever I wanted by just putting it in my pocket. If you do want to let it all hang out there on your belt then it might be advisable to investigate the US companies that sell improved versions of the clip as they seem to get nothing but glowing reviews from users.

## Technical Bits

Before discussing the circuit of the VX-1R it is worth spending a bit of time on the battery technology used in this set. Lithium-Ion (Li-ion) technology is pretty new to ham gear. It has been around for a while, particularly in missiles and nuclear warheads, etc where its lightness, energy density and relatively low leakage are definite pluses, but it has only relatively recently started to appear in some up-market mobile phones and laptop computers.

Its big claim to fame here is the very long life times possible between charges, up to 21 hours of continuous listening to broadcast band AM spread over several days or weeks, or 14 hours of six seconds Tx, six seconds Rx, 48 seconds squelched on VHF. If you compare this performance on VHF with the just three hours possible using a standard Alkaline dry cell in the optional carrier, you can get some idea of just how good it is. In this example, over four times the capacity in something that can be recharged in two hours and weighs only 33 grams.

This all doesn't come for nothing, of course. Li-ion batteries tend to cost a little bit more than NiMH which are in turn more expensive than NiCads. Add to this the note in the manual that the Li-ion battery is only good for 300 charges before it starts to lose capacity, and

perhaps that AA pack isn't quite so bad an idea after all.

Even a quick glance at the circuits shows that this rig's heritage owes as much to the transistor radio as to ham communication equipment. In this case all the front ends and mixers, etc are normal silicon transistors. In fact the only FETs I can see are in the Tx power amps, and in a switching role in the power supply. This is pretty much the reverse of a normal ham rig, but it obviously helps to keep the price down while still delivering pretty good performance.

Unfortunately, I was unable to verify the quoted specs but on air tests lead me to suspect that they are pretty close. In particular I would have been interested in intermod and overload performance as the transistor mixers would tend to imply somewhat poorer performance here. However, the manual does not quote any figures for these and, as said, I was not in a position to measure them. For reference the more important specs given are:

Tx range 144-148 MHz and 430-450 MHz, high power 500 mW, low 50 mW.

Rx Sensitivity rated at better than:  
5  $\mu$ V for 10 dB S/N 0.5-1.7 MHz  
1.6  $\mu$ V for 12 dB SINAD 76-108 MHz  
0.5  $\mu$ V for 10 dB S/N 108-137 MHz  
0.16  $\mu$ V for 12 dB SINAD 144-148 MHz  
15.8  $\mu$ V for 12 dB SINAD 170-222 MHz  
0.5  $\mu$ V for 12 dB SINAD 300-420 MHz  
0.18  $\mu$ V for 12 dB SINAD 430-450 MHz  
15.8  $\mu$ V for 12 dB SINAD 470-800 MHz  
5  $\mu$ V for 12 dB SINAD 800-900 MHz.

As a matter of interest the manual claims that the set is cellular blocked, that is it doesn't work on the frequencies used by analogue mobile phones. However, in the review set, even after a full reset to defaults, I had no difficulties listening to these frequencies. Actually there were no observable breaks in the coverage 76 to 999 MHz.

The circuit basically consists of a set of Rx RF front ends for Broadcast Band, VHF, UHF, and 800 MHz and up. The signals are then mixed with a VHF/UHF dual VCO (which also drives the Tx modules directly) and fed into either a narrow band or a wide band single IC IF chip. This amounts to being a superhet for 0.5-1.7 MHz, with a 455 kHz IF. For the rest it is a dual conversion superhet, with a first IF of 41.45 MHz, and a second



Compared to a relatively recent Yaesu dual band hand-held, the VX-1R looks positively tiny. (Photo by Vicki VK3LT)

of either 450 kHz for narrow or 10.7 MHz for wide. There are also numerous transistor switches dotted around the circuit to provide the power saving features which basically consist of a variable sleep time of either 200, 300, 500 ms or 1, 2 seconds, which can be set via a menu but which are not operable on the Broadcast, FM or TV bands.

The designer of this circuit has been quite ingenious providing lots of little unusual tricks. One is the ability to slightly shift the micro clock frequency just in case it happens to create a spurious signal on a needed frequency. This is done by having one digital output from the micro able to drop some more capacitance across the 4 MHz clock crystal. Another trick is the use of the same circuit as the volume control voltage to tune the broadcast band VCO with the voltage indication on the S meter. The 800 MHz and up front end also is very simple using basically a filter composed of two Cs and one L to filter the normal UHF VCO output for the appropriate harmonic on the way to feed the mixer.

Overall, as described above, the RF parts of the circuit are very simple. They have more in common with a conventional broadcast band set than a ham one; however, it still performs remarkably well compared to those sorts of boxes. The only lack in comparisons is that there is obviously no room in the case for even a small ferrite rod type antenna so AM broadcast band reception is reliant on either strong signals, and/or an external antenna. In practice it does remarkably well by just holding the small whip near a larger conductor such as house wiring, etc.

## Operation

Operation of the VX-1R is straight forward. The frequency coverage is broken up into nine bands, most of which are obvious such as BC BAND is the 0.5-1.7 MHz broadcast band, and FM is mainly the FM broadcast band plus a bit, ie 76-108 MHz. From there on, however, the split up is a bit more arbitrary with AIR covering 108-137 MHz, V-HAM covering 137-170 MHz, VHF TV covering 170-222 MHz, ACT-1 (short for action band 1) covering 222-420 MHz, U-HAM covering 420-470 MHz,

UHF-TV covering 470-800 MHz, and ACT-2 covering 800-999 MHz.

Selecting a frequency then becomes a case of pushing the band button repeatedly to step through the bands until the required one is reached, at which point the set will, if in VFO mode, start at the so-called home frequency for that band (home frequencies can be set), or, if in memory mode, come up with the last memory used. If it is in VFO mode then, if the frequency required is close by, the dial knob is rotated in the appropriate direction with each click being a step. Or, if larger steps are needed, pressing the function key then the up or down key will temporarily make the step size one MHz. In memory mode the up and down keys will step through the memories.

Once on your desired frequency, the volume and squelch can be changed if required (I didn't have any problems leaving the squelch on the auto setting) by pressing the Vol button then using the dial knob to vary the volume. A similar method is used for squelch if needed. If you just want to use this set on memories it would be worthwhile spending a bit of time programming it up, most easily done with the optional computer control software, and then changing the default action of the knob to be volume.

In use on-air, the audio quality, both of the Tx and Rx in the ham bands and Rx in the broadcast bands, was surprisingly good from such a small package. Tx and Rx audio on two metres was especially good, sounding better than that produced from my old IC 2A, and the lower power levels seemed to make very little difference, at least in the situations in which I normally use a handheld.

The VX-1R can be configured for either 52 or 142 memories, with the more powerful 52 configuration being the default. As far as I could see in Australia, and certainly in my case, there is no real benefit in the extra features of the 52 case, so I would recommend changing this to the 142 option via the power-on process described in the manual.

The only down side to this configuration that I could see was that you lose the ability to set the Tx and Rx frequencies independently, and to vary the band home frequencies. In either

configuration, however, memories can store Tx power levels, Rx mode, six character alphanumeric label, repeater offset, etc.

As well as these memories, there are 10 special ones for the 0.5-1.7 MHz band which can have labels, and other special function memories such as the 31 special search memories and 10 pairs of band limit values that don't use labels. These last two memory types are used in conjunction with scanning, as their name suggests. The smart scan with auto saving into the 31 memories for later review can be quite useful.

This smart scanning brings me to a couple of little niggles with the VX-1R.

The manual describes what sounds like a very useful initial start-up mode where you can get the rig to scan the FM broadcast and TV bands and to store the frequencies found into normal memories. The mode works; however, its usefulness was limited by the radio being just a little bit too smart.

Obviously it is set up to expect stations to have audio at XXX.750 MHz, which is fine for the TV bands, but it limits the number of FM stations found. I suspect that the problem is simply one of being configured for a slightly different band plan than that found in Australia.



The VX-1R alongside the removed battery pack.

(Photo by Vicki VK3LT)

There is a similar sort of problem with the automatic repeater offset feature which seems to be set for the US model, again slightly different from ours. Neither of these problems is particularly disastrous and they are easily compensated by a bit of manual intervention. However, they perhaps show some of the disadvantages of being in a relatively small ham market.

The VX-1R has many other features available via buttons or menus. In size and amount of time you can spend just playing with it, this is truly the ham version of a Tamagotchi.

### Conclusion

This radio is basically an amazing toy for any radio amateur. The technology where a dual band hand-held can be put in such a small package that you can just about lose it in a suit pocket and think you have dropped it because it is so light, is incredible. Given the price and the functionality of this package I can see it finding its way on to many a ham's present wish-list.

ar

### ALINCO DX-70TH

HF & 6M 100W  
SUPERB TRANSCEIVER \$1279

BIG RANGE, BEST PRICES IN AUSTRALIA  
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**IC-746** HF-6M-2M 100W,DSP,BIG  
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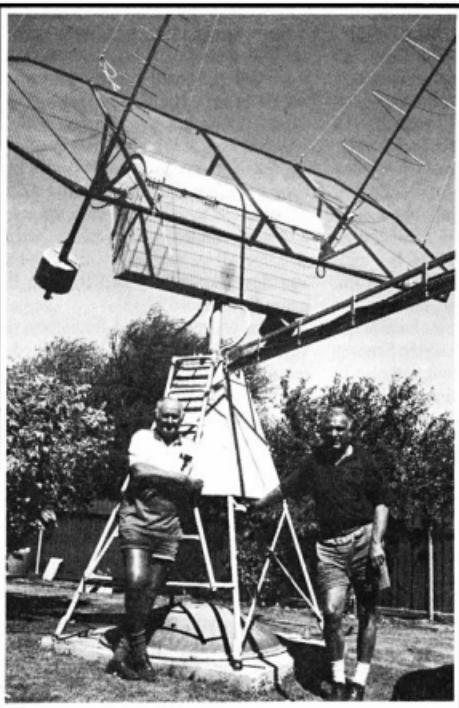
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# Cover Story



Doug VK5GA and Tony VK5ZAI with Tony's home-made satellite tracking antenna powered by windscreen-wiper motors.

(Photo courtesy of the *Murray Pioneer*)

Our cover photo this month is by courtesy of Doug Tamblyn VK5GA and Tony Hutchinson VK5ZAI who made contact quite frequently with Andy Thomas VK5MIR aboard the Russian Spacecraft MIR. Good publicity for amateur radio was achieved in the newspaper *Murray Pioneer*, published at Renmark, and on which this account is based.

Both of the operators worked Andy from their own stations (Tony at Loxton and Doug at Paringa), but the cover photo was taken by the *Murray Pioneer* photographer in Tony's shack. Tony was a student at the same school as Andy (St

Peters College in Adelaide), although some years earlier.

A few interesting details regarding the space mission are as follows: At the height of 390 km above Earth, places as far apart as Melbourne, Sydney and Ceduna were simultaneously visible. A small fire aboard MIR during March had temporarily raised the carbon monoxide level in the cabin but had been quickly controlled. Andy indicated that some remaining difficulties outside the spacecraft would need extra-vehicular activity (EVA) to put them right. (The daily press and TV have subsequently reported two EVAs with video coverage by Andy on camera. Ed)

It was suggested that Andy may have given some preference to working VK5s, but this was probably

"tongue in cheek". There were many thousands of radio amateurs around the world looking for a QSO with Andy on 145.985 MHz, so he was always busy on the occasions when more urgent activity did not take priority.

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## ■ Receivers

# A Junk Box Regenerative Receiver

Peter Parker VK1PK  
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Home Page: [www.pcug.org.au/~parkerp/](http://www.pcug.org.au/~parkerp/)

### Introduction

**H**ands up all those who thought you'd never get to use all the variable capacitors and vernier reduction drives filling your junk-box. If you're one of these people, this project is for you.

Providing CW/SSB/AM reception of three HF amateur bands, this regenerative receiver was designed to be built by the experimenter with an overflowing junk box. Possibly the only concession to modernity is the use of solid state components rather than valves.

The completed set is a joy to use. Its performance is at least as good as a well-built valve regenerative receiver. Eight AA cells power the set. The internal battery minimises the risk of hum that so often mars the performance of simple receivers. The set tunes 3.5 to 10.5 MHz and is based on a design by Charles Kitchin N1TEV (*Ref 1*).

No attempt has been made at miniaturisation. With its large internal speaker, substantial tuning dial and sizeable knobs, this radio dwarfs most modern transceivers. The set's physical presence is only skin-deep, though; those who lift the lid are invariably disappointed at how little there is inside.

### Circuit Description

#### Attenuator

Received signals must first negotiate the front-end attenuator. This consists of three series-connected capacitors switched by a four position rotary switch. The attenuator is only used when very local signals are being received. With some antennas, though, the received signal's

strength may actually increase when the attenuator is switched in. This occurs when the series capacitance used happens to improve the impedance match between the antenna and the RF amplifier stage. Of course, there is no real need for the attenuator to use a rotary switch and fixed capacitors; any 10-200 pF (not critical) variable capacitor that is electrically insulated from the front panel could be used instead.

#### RF Amplifier

The next stage is a grounded gate broadband RF amplifier. This boosts receiver sensitivity and isolates the regenerative detector from the antenna. Such isolation reduces RF radiation when SSB/CW signals are being received and allows the attenuator to be switched in without de-

tuning the receiver. The amplifier's output is coupled to the regenerative detector through L1.

#### Regenerative Detector

This stage forms the heart of the receiver. The incoming signal is selected by a tuned circuit whose resonant frequency can be varied from 3.5 to 10.5 MHz. This is then coupled to a FET detector.

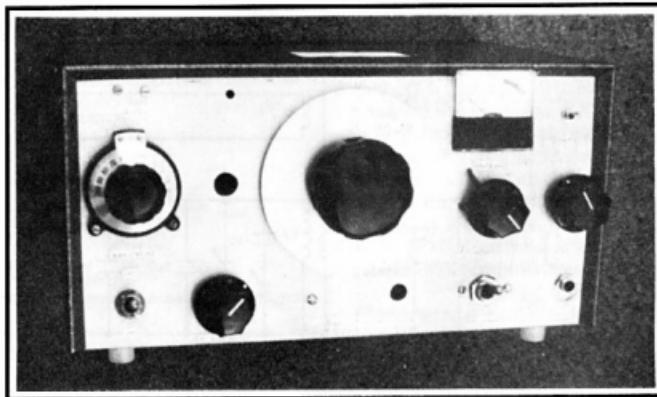
A simple FET detector has low gain and poor selectivity. However, by applying positive feedback (or regeneration), both the gain and selectivity of the stage improve dramatically. Because the amount of regeneration needed varies as the receiver is tuned, it needs to be made user-adjustable.

When receiving AM signals, the regeneration control should be set just short of when the receiver starts to oscillate. Advancing the regeneration control so that the receiver is just oscillating allows reception of SSB and CW signals.

The supply voltage to the regenerative detector is regulated by a Zener diode. This, along with solid mechanical construction and good quality components, contributes to the frequency stability, smoothness of regeneration and overall performance of the receiver.

#### Audio Amplifier

A conventional LM386 audio amplifier is used. The gain of this stage is sufficient to allow speaker reception, provided an efficient antenna is used.



Completed Regenerative Receiver.

## Crystal Calibrator

The crystal calibrator stage (Fig 2) is optional. However, if you have a spare 2 MHz crystal, it is worth having so that you can check the accuracy of the dial calibration chart from time to time. It's best to do your calibrating with the antenna disconnected, so that you hear nothing other than the calibrator's signal. Because the calibrator's signal is not modulated, have the detector oscillating as you would if listening to a CW or SSB signal. Calibration points are 2 MHz apart (at 4, 6, 8 and 10 MHz). More advanced constructors could add frequency divider ICs to obtain closer calibration points.

## Battery Voltage Meter

This is an extravagance. It was included purely because there was a meter already mounted on the box I wanted to use. To save power, it is switched in only when required. The circuit used here is a simple linear-reading voltmeter, reading 0-20 volts.

Refinements include expanding the scale to give it better resolution between 10 and 14 volts and adding a separate audio amplifier immediately following the regenerative detector to make an S-meter.

circuit. Those wishing to economise could omit the battery checking function altogether, or use an LED in place of the meter.

## Construction

**Construction**  
With many projects it is possible to assemble the circuit board first, test it, and then decide if it is good enough to put in a case. This receiver is different. Its performance depends greatly on the quality of its mechanical construction. Work on the mechanical part of the project takes much more time than the electronic assembly. However, it is hoped that possessing a well-finished case and chassis generates enough enthusiasm to spur the builder to complete the project.

The first task is to gather together all your vernier drives, tuning capacitors, speakers, off-cuts of printed circuit board material and, of course, any spare metal cases. The object of this exercise is to plan what parts are to be used and how they are going to be mounted inside the box.

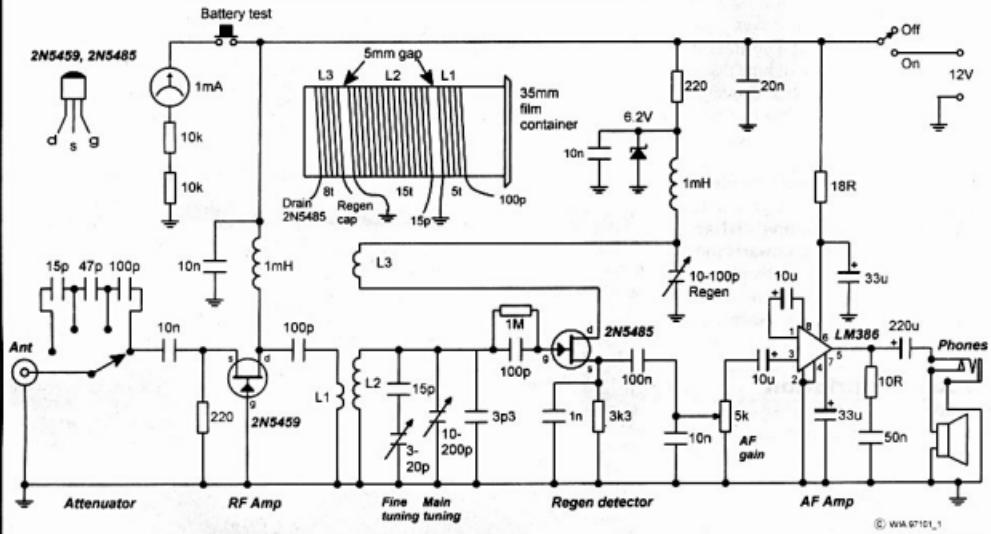
The most important point here is the internal chassis and how it holds the main components. In particular, the mounting of the variable capacitors, coil former and receiver circuitry needs to be considered.

With the parts I had on hand, a deep U-shaped chassis made from three pieces of double-sided printed circuit board material was the best solution. One end of the U runs parallel to the front panel, the other end is nearer the back panel, while the bottom of the U is screwed to the bottom of the case (the nuts being soldered to the inside of the U). The top of the U is left open for ease of access for construction and adjustment.

When using double sided PC board material as an internal chassis, make sure both sides of the board are earthed. You can do this by bending a 1 cm length of tinned copper wire into a small U (like a hairpin) over the edge of the board and soldering the wire to the board on both sides.

The main tuning and regeneration controls are both mounted inside the U, as is the RF portion of the receiver's circuitry and the coil former.

Because the U does not extend along the full width of the case, a piece of aluminium has been bent to form a mounting bracket for the fine tuning variable capacitor. The mounting screws for this can be seen in the photograph near the extreme top left of the front panel.



**Fig 1 - Schematic diagram of the Junk-box Regenerative Receiver.**

As mentioned before, this receiver makes liberal use of vernier dial drives. The best you have should be reserved for the main tuning control (centre of photo). A smaller vernier drive with a dial is ideal for the fine tuning adjustment (just left of main dial). A reduction drive on the regeneration control (just below the meter) makes the receiver easier to use. A dial is not necessary here; however, a red pointer made from a short length of stiff insulated wire soldered to a small eye lug screwed to one of the dial mounting holes is a handy addition.

The RF portion of the receiver is constructed on a piece of printed circuit board material. No holes were drilled; components connecting to earth were simply soldered to the board. Other components are soldered across them. The whole assembly is quite rigid. The optional crystal calibrator uses similar construction.

The coil is wound on a 35 mm photographic film container. Other, more rigid materials could also be used and would probably improve the set's frequency stability further. Windings are spaced approximately 5 mm apart. Further information on the coil is included in Fig 1.

The LM386 audio stage was built on a small piece of matrix board. Four PC board pins were used to anchor this to the internal chassis.

## Parts List

### Semiconductors

- 1 6.2 V Zener diode
- 1 BC548 NPN
- 1 2N5459 FET
- 1 2N5485 FET
- 1 LM386 audio amplifier IC

### Resistors

- 1 10 ohm
- 1 18 ohm
- 2 220 ohm
- 1 3.3 k ohm
- 3 10 k ohm
- 1 100 k ohm
- 1 1 M ohm
- 1 5 k potentiometer (AF gain)

### Capacitors

- 1 3.3 pF NPO disc ceramic
- 2 15 pF disc ceramic
- 1 47 pF disc ceramic
- 3 100 pF disc ceramic
- 1 560 pF disc ceramic
- 5 0.01  $\mu$ F disc ceramic
- 1 0.02  $\mu$ F disc ceramic
- 1 0.05  $\mu$ F disc ceramic
- 1 0.1  $\mu$ F disc ceramic

## Testing/Operation

First test the AF amplifier section of the receiver. Prodding pin 3 of the LM386 with a screwdriver or antenna wire should produce a click or buzz in the headphones. If this is heard, you can be fairly sure that this stage is operating correctly.

Next check the operation of the regenerative detector. The most important sign that it is working is whether it can be made to oscillate when the regeneration control is advanced towards maximum capacitance. Failure to oscillate could be for the following reasons:

1. L3 connections reversed;
2. Insufficient turns on L3;
3. L3 not close enough to L2;
4. Maximum capacitance of the regeneration control insufficient; or
5. Other wiring errors.

By connecting an antenna, switching the attenuator completely out, turning the AF gain to near maximum, and tuning across the band while keeping the regeneration control on the point of oscillation, it should be possible to hear short-wave broadcast and other stations, particularly at night. Set the Fine Tuning control to half (50 on dial) and use the main dial to find the band of interest. Most tuning within your chosen band can be done with the fine tuning control; even SSB signals should be quite easy to tune in. Use the attenuator only if signals are very strong.

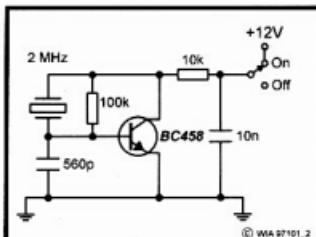


Fig 2 - Schematic diagram of the Crystal Calibrator.

With signals of known frequency (eg broadcast stations, amateur activity, WWV/VNG) it should be possible to get an idea of the set's tuning range. Ideally the receiver should cover 3.5 - 10.5 MHz. If 80 or 30 metre band coverage is missing or partial, add or remove turns from L2 to alter the tuning range. At the same time, check that it is possible to make the detector oscillate through the whole tuning coverage. Perform all coil adjustments and calibrations with the Fine Tuning control set to 50.

Once satisfied with the frequency coverage, make a calibration scale for the receiver and tape it to the case. Amateur, broadcast, and time standard signals can assist calibration. Also use the 2 MHz calibrator to generate marker signals at 4, 6, 8 and 10 MHz.

The prototype was tested with a 10 MHz half wave dipole fed with 300 ohm feeder. Quality speaker reception of WWV and broadcast stations near 10 MHz was possible, but because the antenna's efficiency fell as the frequency dropped, headphones were needed for reception of lower frequency signals. However, many SSB/CW amateur signals on the 3.5, 7 and 10 MHz bands were heard.

Frequency stability was good, and it was possible to bring the set smoothly into regeneration. A pleasing characteristic of this receiver, compared to others, is that satisfactory reception is possible across the entire 80 metre band without having to touch the regeneration control.

## Reference

1. *Radio Communications*, April 1997 (Technical Topics)

## ■ Technical

# Technical Abstracts

Gil Sones VK3AUI  
C/O PO Box 2175  
Caulfield Junction VIC 3161

### Simple VHF Receiver

A simple receiver covering 49 to 55 MHz was published in *QST*, December 1997, by Charles Kitchin N1TEV. The receiver was a super-regenerative design using two general purpose FETs and an IC audio amplifier. It was intended for construction using 'dead bug' or 'ugly' construction where components are soldered together above a piece of circuit board rather than on an etched circuit board.

The circuit is shown in Fig 1. The tuning capacitor C3C should be mounted

directly to the ground plane circuit board and should not be attached to the panel. This is to ensure a single point short earth connection. An insulated mechanical stiffening attached to the front panel would be OK. C3C is a small 50 pF variable.

Capacitor C2 is shown as a gimmick capacitor. This is two one inch long pieces of #20 insulated hook-up wire twisted together. Use thin insulated wire or try a one or two pF capacitor for C2.

RFC2 is shown as a 33 microhenry RFC, but may require adjustment to get

the detector oscillating. Try other values or remove some turns until oscillation is achieved. Individual components and layouts may make this adjustment necessary.

The short form parts list is given in Table 1. Most components are not critical.

For two metre operation you could try omitting C3A and C8A, change C3B to approximately 15 pF, change C3C to a 15 pF variable, change C4 to 2 pF, change RFC1 and RFC2 to 15 microhenries, and make L1 three turns one inch long.

The 1 k resistor and 6.8 V Zener diode before the regeneration control will also be needed for higher bands but are not needed at six metres. The resistor and Zener are shown in the inset in Fig 1.

The quench waveform can be adjusted as shown in Fig 2.

The CRO probe is made into a loop as shown at Fig 2A and coupled to the detector tuned circuit. The quench waveform should be adjusted to be near to a sine wave. In Fig 2 the waveforms at

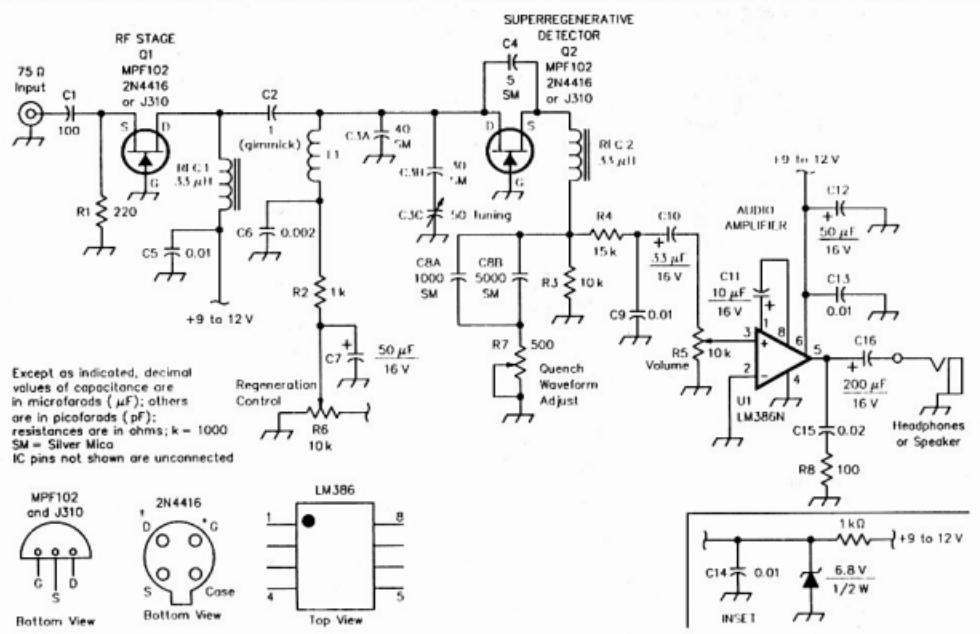
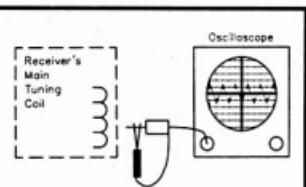
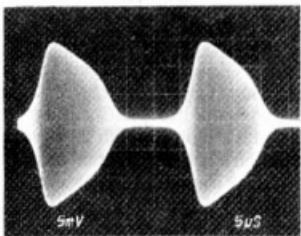


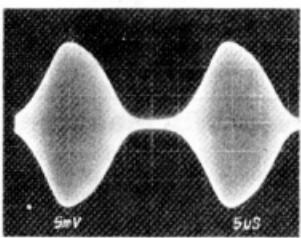
Fig 1 - Schematic of the VHF receiver.



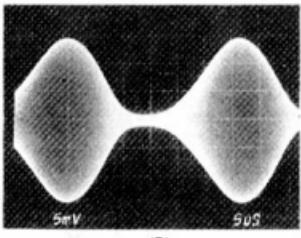
(A)



(B)



(C)



(D)

Fig 2 - Quench waveform adjust.

B, C and D corresponded to R7 set to 0 ohms, 250 ohms, and 500 ohms respectively. Alternatively, just jockey the regeneration and quench controls for best operation. The aim is to have a smooth operation and the quench adjustment is to minimise bandwidth and maximise sensitivity.

Table 1 - Parts List

|            |   |
|------------|---|
| C2         | Gimmick capacitor                                       |
| C3C        | 50 pF variable  |
| C7, C12    | 47 μF 16 V electro                                      |
| C10        | 33 μF 16 V electro                                      |
| C11        | 10 μF 16 V electro                                      |
| C16        | 220 μF 16 V electro                                     |
| L1         | 7 turns #14 AWG (0.25 inch dia) air core 0.75 inch long |
| R6         | 10 k 10 turn pot  |
| RFC1, RFC2 | 33 microhenry RFCs                                      |

### Time Domain Reflectometer

A Time Domain Reflectometer or TDR is used to spot discontinuities in cables and to determine impedance and cable length. There are TDRs for optical fibres too. They are useful for spotting dodgy connectors and for troubleshooting many cable problems. A TDR consists of a pulse generator and an oscilloscope in its basic form. They have been around for many years and a version was used with the old open wire telephone lines.

In *RadCom*, January 1998 issue, a pulse generator is featured which can be used with an oscilloscope to provide a Time Domain Reflectometer. This useful device was originally published in *Electron* in February 1997 by Martin Beekhuis PA3SDC and Klaas Robers PA0KLS. The reprint in *RadCom*, January 1998, appeared in the *Europetek* column of Erwin David G4LQI who translated the original.

The TDR pulse generator is shown in Fig 3. To use it you plug a BNC Tee connector into the vertical input of your CRO. The pulse generator is then connected to one of the arms of the Tee connector and the cable to be measured is connected to the other arm of the Tee

connector. The pulse width is adjusted to the narrowest your CRO can display. This is the condition for maximum sensitivity. The pulse repetition frequency is set high enough to get adequate brightness but low enough to measure cables up to 200 metres long. The adjustable trimmer capacitor sets the pulse width.

The ICs used are a 74LS132 and a 74LS00. If you have a fast CRO then you should replace the 74LS00 with a 74S00. You may need to externally trigger the CRO time base from pins 6, 9 and 10 of IC1.

The sweep calibration of your CRO provides the calibration of the TDR. At a sweep speed of 0.1 microsecond per cm, each 1 cm division represents a path length of 30 metres in an air dielectric cable. In a solid poly dielectric cable such as RG-213, the 0.66 velocity factor means that the path length becomes 20 metres. Since the pulse must travel both ways through the cable this represents a 10 metre length of cable.

Just remember that the pulse travels at 300,000 km/sec in free space and is slowed by the velocity factor of the cable you are measuring. Also remember that the pulse travels out from the generator to the cable end and then returns.

The pulse generator will be useable with a 10 or 15 MHz CRO but obviously a faster CRO is desirable. Sweep speeds of under 100 nS per division are desirable as this corresponds to 10 metres per division for solid poly coax such as RG-213.

With this TDR pulse generator you can compare coax and find the length of coax lines. You can also see what your connectors are like. The impedance of unknown coax can be found by varying the termination to find the minimum

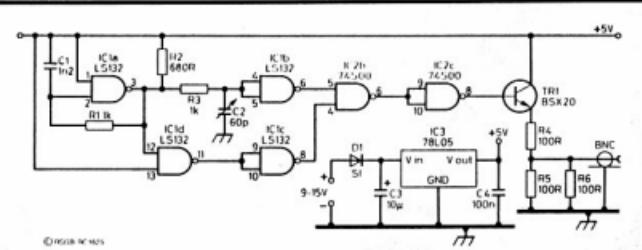


Fig 3 - Time Domain Reflectometer pulse generator.

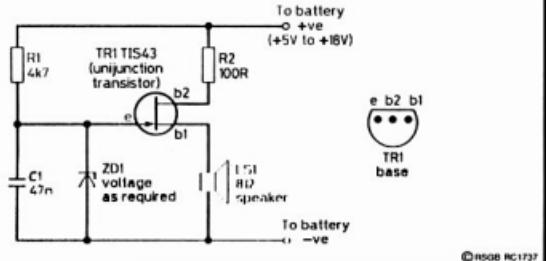


Fig 4 - Low voltage alarm.

discontinuity from the termination. The velocity factor of a cable can be found by comparing the electrical length with the physical length.

### Low Voltage Alarm

When operating mobile or portable, the battery voltage requires monitoring so that it does not fall to a point where charging or even starting the vehicle becomes difficult. Many batteries should not be too deeply discharged and a vehicle battery can easily be discharged to the

point where starting the vehicle is difficult. You can use a voltmeter but you must continually monitor it. In *RadCom* for April 1998 a simple monitor was described by Steve Ortmyer G4RAW.

The circuit in Fig 4 uses a unijunction transistor and a Zener diode together with a couple of resistors, a capacitor and a small loudspeaker which gives an audible alarm. This should allow you to cease operation and commence recharging. It does not disconnect the load and relies on the remaining battery charge for its operation.

The Zener voltage is not the same as the alarm voltage and some experimentation may be required if different voltages are required or if a different unijunction transistor is used. The Zener voltages for different alarm voltages are:

| Zener Voltage | Alarm Voltage |
|---------------|---------------|
| 6.6 V         | 10.9 V        |
| 8.2 V         | 12.1 V        |
| 12 V          | 19 V          |

### Reverse-a-Probe

The item in January 1998 *Technical Abstracts* brought a letter from Steve Mahony VK5AIM who had built a similar device some time ago. Steve had made his device when he had to test many diodes.

He built a device with a reversing switch on a scrap of board mounted on two banana plugs to plug into a meter. This simplified diode testing. This is an alternative construction to the probe-mounted version in the January 1998 *Technical Abstracts* which was the work of A W Edwards K5CN and was originally published in the *Hints and Kinks* column of Bob Schetgen KU7G in *QST* for August 1997. ar

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### New WIA Members

The WIA bids a warm welcome to the following new members who were entered into the WIA Membership Register during the month of May 1998:

|        |                   |
|--------|-------------------|
| L30970 | MR K ROBERTSON    |
| L30971 | MR T JOYCE        |
| L30972 | MR D B HOYOAKE    |
| L60395 | MR K R MORRIS     |
| L70150 | MR E W FERRIER    |
| VK1AUS | MR S N TROTTER    |
| VK1CP  | MR P J COBDEN     |
| VK1LF  | MR L R FREEBODY   |
| VK1ZMC | MR M CHENG        |
| VK1ZPL | MR P H LONGWORTH  |
| VK2HVR | MR V A WEEKES     |
| VK3DAC | MR F R SWAINSTON  |
| VK3FO  | MR R MILNE        |
| VK3GJZ | MR G ZIMMER       |
| VK3MMM | MR W GRYPSTRA     |
| VK3TXE | MR J COLLINGWOOD  |
| VK3VOF | MR H H SCHICK     |
| VK3VTX | MR G BARNES       |
| VK3WC  | MR T VASILJIE     |
| VK3WP  | MR B A ENDERSBEE  |
| VK7AF  | MR J NICHOLSON    |
| VK7IC  | MR I CLEMENTS     |
| VK7NAU | MR A STEVENS      |
| VK7NRX | MR R BURN         |
| VK7PN  | MR P NEWMAN       |
| VK7ZBG | MR M SCHROETER ar |

# ■ Repeater Link

## DTMF Code Options

Will McGhie VK6UU  
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Packet: VK6UU@VK6BBR  
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Last month a circuit for a DTMF decoder, that included a code store and a latch, was presented. The code store was simple in design and easy to understand in operation. By using a three-input AND gate and storing the first two digits for a brief time, the third digit to the AND gate resulted in the output of the AND gate going high. Only that particular code would cause the output of the AND gate to go high; well almost.

If the first and second digits are sent reversed, then the AND gate also responds to this code and the output goes high.

For example, the code 123 and 213 are both valid for that particular circuit. This is not a problem but, for some applications, a completely unique code may be preferred.

### Alternate Circuit

The accompanying circuit was send to me by Mac VK6MM. By using a two input AND gate, and cascading the output of the first gate into one of the inputs of another gate, the valid reversed digit is overcome.

The circuit speaks for itself. Instead of a three-input AND gate, a two-input AND gate is used. Digit one is stored for a second or two and during this period if a second digit is received on the other gate the output of the AND gate goes high. This is then stored on gate one of the second AND gate, and when the third digit is received on the second gate input of the second AND gate the output goes high. Reversing any of the three digits does not result in the output of the code store going high. Only one code is valid.

### Options

There are several options to this circuit. The circuit can be expanded for a four digit code by adding another cascaded AND gate and any higher code number you may want, just by adding another AND gate. The single AND gate is a two digit store code and this may be useful. The circuit is simple to understand and can be modified to your needs.

### Modifications

Last month's circuit can be changed easily to use this code store circuit

without changing the three-input AND gate. Just tie one of the inputs high so the three-input AND gate becomes a two-input AND gate.

The three-input AND gate IC contains three AND gates, one of which was not used. By converting this IC from three-input to two-input you end up with three two-input AND gates, which is what is required.

### Pin Numbers

I did not include the pin numbers of the IC on the circuit diagram as there are any number of AND gate ICs you can use, such as a 4081, 74LS08 or 74HC08, etc.

### 40 Metre Gateway Application Turned Down

The ACA have not approved the application for a licence for a 40 m gateway onto two metres. VK6's application for such a licence was turned down for two reasons:

1. No repeaters are allowed below 29 MHz; and
2. The gateway would transmit a signal in the absence of a received signal.

The ACA suggested that if we wish to pursue this issue we should approach the Federal WIA in order to make the necessary policy changes (we did this).

I will expand on this in next month's *Repeater Link*.

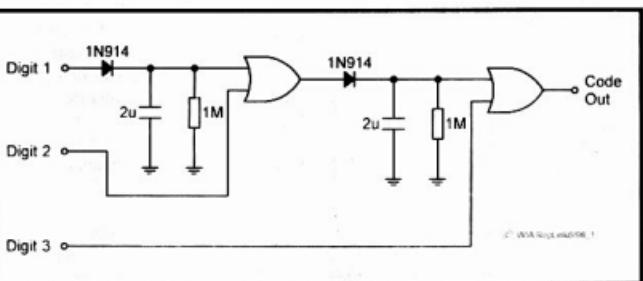


Fig 1 - Schematic of the alternate DTMF code store.

### Winner of the WIA Membership Prize

Joe Janne VK3AU is the proud owner of a brand new Kenwood TM-V7A dual band FM radio after winning the membership renewal prize for 1997. The rig Joe received is a newer version of the one advertised.

Those who renewed their WIA membership during 1997, or were current three year or life members, went into the draw for this great prize donated by Kenwood Australia.

The winner was drawn by Ross Keogh from Strictly Ham, the Kenwood dealer in Melbourne. The draw was overseen by Federal Education Co-ordinator Brenda Edmonds VK3KT.

## ■ Novice Notes

# The Versatile End-Fed Wire

Peter Parker VK1PK  
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E-mail: parkerp@pcug.org.au  
Novice Notes Online: <http://www.pcug.org.au/~parkerp/nonline.htm>

A piece of wire of almost any length can be used as an antenna on the HF bands. However, just because an antenna can be made to work is no guarantee that it will perform efficiently. This article will initially concentrate on the half wavelength of wire and its use as an effective multi-band antenna. Information on a simple antenna coupling unit and tuning indicator for use with these antennas is provided towards the end of the article.

### Length

It was mentioned above that the actual length of wire used in an end-fed antenna is not critical. However, some lengths are easier to use than others, particularly if multi-band capability is required. Also, very short antennas (significantly less than a quarter wavelength on the operating frequency) are inefficient, making it hard to put out a good signal.

A length of one quarter wavelength (ie 20 metres on the 80 metre band) is commonly suggested. Though such antennas do work, an extensive ground system or counterpoise is required for

best performance. Ground systems can require considerable time and effort to install and detract from the extreme simplicity of these types of antennas.

An alternative is to use a wire of one half wavelength in length on the lowest operating frequency. An extensive earth system becomes much less important. Indeed, the author has had good results whilst using no earth at all. However, for certain other reasons (explained later) some earthing is desirable.

The antenna described here is forty metres long, or a half-wavelength at 3.5 MHz. As mentioned before, a substantial earth is not required. Because a half-wavelength piece of wire exhibits a very high end impedance at the operating frequency (and its multiples), some form of coupling unit between the transceiver and antenna is required. Its function is to efficiently transform the transceiver's 50 ohm output impedance to the antenna's high feed-point impedance. Whether a wire antenna has a high or low impedance is important because it affects the type of coupling unit required, as well as the need for an earthing system.

So, what is the impedance of this antenna on bands other than eighty metres? We already know that a wire that is a multiple of a half wavelength exhibits a high impedance at the feed-point. At 21 MHz (15 metres) a forty metre wire is approximately six half-waves long. On 28 MHz (10 metres) it is eight half-wavelengths. Similarly, our wire is several multiples of a half wave on other HF bands such as 40 and 20 metres. This means that the antenna will always have a feed-point impedance appreciably higher than 50 ohms and will not require much of a ground system on all bands. It is for these reasons that 40 metres is a good length for an end-fed wire antenna for the HF bands.

### Benefits and Limitations

Because it is fed at one end, people whose house is near one boundary of the block will probably find this antenna easier to put up than a half-wave dipole, which is fed in the centre. Another advantage of this antenna is that no separate feed line is required. This makes it particularly attractive for portable use as coaxial cable can be quite bulky.

What are the disadvantages of this type of antenna? The first is that it requires a matching unit to operate. Each time you change band you will need to adjust this for best impedance match between transmitter and antenna. Another risk with these types of antennas is RF in the shack. Nevertheless, these two problems are not insurmountable, and the end-fed wire is one of the most cost-effective multi-band antennas available.

### Erection of Antenna

The antenna should be as high as possible. Have as much of the wire as possible running horizontal, or nearly so. However, if this is not possible, don't despair; your antenna will still work. The antenna is not particularly directional, especially on the lower frequency bands, so orientation is not that critical.

The type of wire used is also not critical. Medium gauge stranded insulated wire has given good service in the author's antennas. Ordinary egg-type insulators can be used to suspend the wire. As an alternative to purchasing these new, insulators can be made from short lengths of plastic water pipe or conduit.

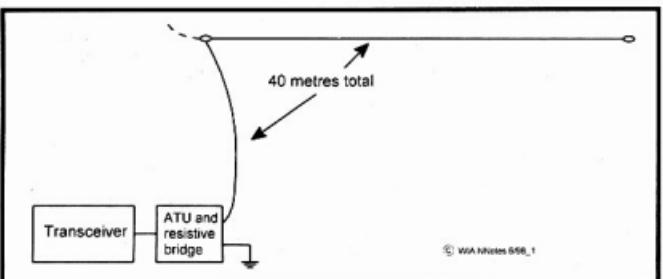


Figure 1 - End-fed antenna system.

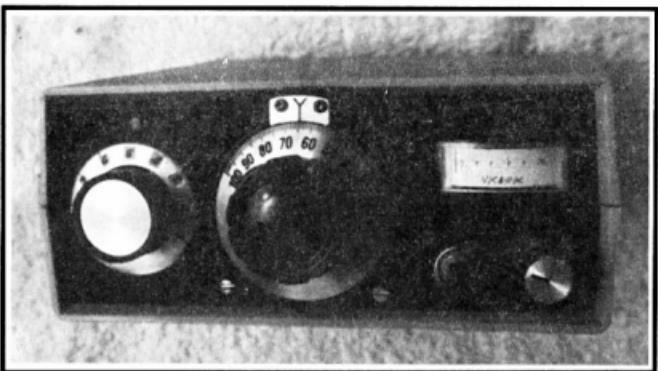


Photo 1 - Front panel of L-match and resistive antenna bridge.

Either trees, chimneys or specially-made masts can be used to support the wire. Two such supports are normally required for these antennas unless your radio shack is on a second or third storey. In many cases the second support can be a tree in the backyard.

It is not necessary to climb this to mount the antenna; with a small lead sinker a fishing line can be thrown over a convenient branch. The sinker is then removed and the line tied to the antenna's insulator. While observing the sag in the antenna wire, pull the fishing line tight. Then release it a little and tie it off at a convenient point. Some sag should be allowed for in wire antennas to allow for movement of the supporting branch in the wind. Always observe the usual precautions about keeping the antenna away from power lines and public thoroughfares.

## Coupling Unit and Resistive Bridge

The purpose of the coupling unit described here is to transform the transceiver's output impedance of 50 ohms to the higher impedance of the wire antenna. Between the matching unit and the transceiver is a resistive antenna bridge that is switched in to aid the adjustment of the coupling unit. Figure 2 is the schematic diagram for the complete unit.

An L-match circuit consisting of one adjustable inductor and one variable capacitor is used. This is simpler than most other antenna coupling units which require two or more variable capacitors,

a number of inductors and possibly a switch. This simple approach is possible as the unit is only required to match a limited range of antenna impedances.

The resistive bridge is used to show when the L-match is properly adjusted. Using it is similar to a standard SWR bridge in that you initially adjust the sensitivity control for full scale on the meter and adjust the L-match until the reading on the meter is zero (or close to it). However, the resistive bridge is unlike an SWR meter in that it does not have a forward/reverse switch. Also, it cannot be left in line while transmitting. Further information on operating the resistive bridge is given later.

Photo 1 shows the completed unit. The

variable capacitor adjustment is in the centre of the front panel. To its left is the ten-position rotary switch for the adjustment of the L-match inductor. The right-hand third of the panel is taken up by the resistive antenna bridge. Below the meter movement is the tune/operate switch and the meter's sensitivity control.

Photo 2 shows the inside of the L-match and resistive antenna bridge. The home-made tapped inductor is mounted just behind the rotary switch. Alongside the coil, behind the vernier drive, is the variable capacitor. Most of the remaining space inside the box is occupied by a piece of matrix board that holds the parts used in the antenna bridge. Because light weight was important, the prototype is housed in a commercially-available plastic box. Note that to accommodate the top of the vernier drive, some plastic has had to be shaved off inside the top lid of the box. This may be visible in Photo 1.

The variable capacitor pictured is a rare transmitting-type unit.

Unfortunately, these can be hard to come by. However, Daycom of Melbourne may be able to supply a suitable unit. An alternative is to cannibalise a variable capacitor from any valve broadcast receiver, or one of the older transistorised sets. Unless you are using very low power (a few watts), the small plastic dielectric types used in modern AM transistor radios are not really suitable.

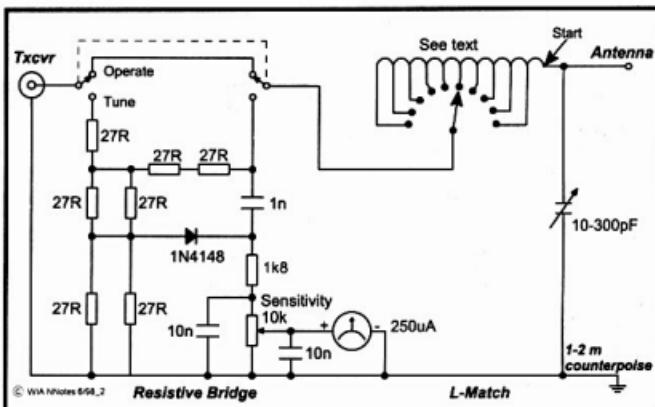


Figure 2 - Schematic diagram of L-match and resistive antenna bridge.

Hamfests, junk sales and the like are other good sources for these capacitors, even if you have to buy the radio that goes with it. Most variable capacitors that you'll see will have two or three sections or 'gangs'. Simply use only one gang and ignore the rest. The actual value of the variable capacitor is not important provided its maximum capacitance exceeds 150 or 200 picofarads.

A vernier reduction drive and dial adds greatly to the appearance of the finished product and makes adjustment easier. The one pictured came from Dick Smith Electronics. However, if your budget is tight and you are unable to find suitable second-hand reduction drives, this part can be omitted.

The rotary switch used was a salvaged wafer switch having ten positions. The switch originally had several sections, so the unwanted ones were removed and the rear of the shaft cut to size. It is desirable to have a switch with as many positions as possible to allow more precise adjustment of the coil. If you are unable to salvage a suitable switch, Dick Smith stocks a small 12-position rotary switch. These are suitable at low power levels, but the author has not tried them with 100 watts. If all else fails, an alligator clip and wander lead will be just as effective as the switch, though somewhat less convenient to use.

The tapped inductor is the other main component of the L-match. The coil in the photograph was wound on a piece of 25-30 mm diameter plastic tube. Ordinary thin insulated wire was used in the prototype. The number of taps needed is always one less than the number of positions available in your rotary switch - thus the coil here has nine taps. To make a tap, simply remove about 1 cm of insulation with a knife, form the bare portion of the wire into a hairpin loop,

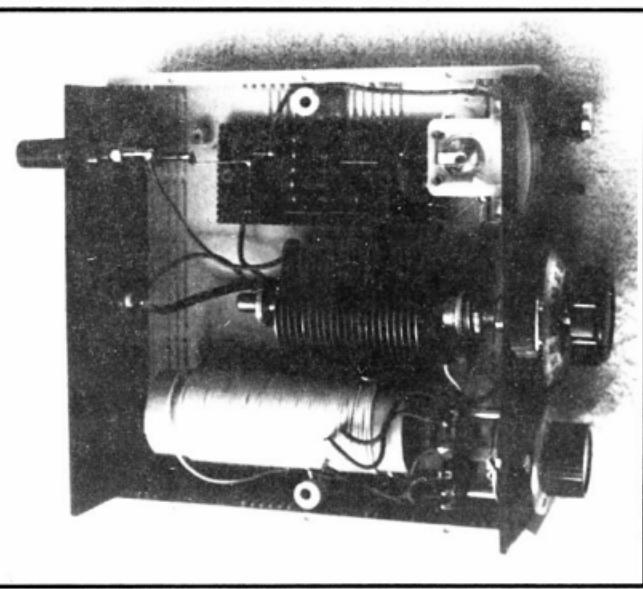


Photo 2 - Inside of L-match and resistive antenna bridge.

twist and solder. Hold the iron on the joint for only the minimum amount of time necessary to prevent the insulation melting off the wire.

Table 1 gives the coil taps used on the prototype. Note that the start of the coil is connected to the antenna socket and variable capacitor and the wiper of the switch is wired to the antenna section of the Tune/Operate switch.

The end of the coil whose taps are closest together should be nearest the switch. The reason for this is that these taps are likely to be used on the higher frequency bands, where the effects of stray inductance are more significant. It is also for this reason that all connections between the switch and the coil should be short and thick. The coil is attached to the bottom of the case with a pair of bolts, nuts and 10 mm stand-offs, which can be made from an old straight-sided ball point pen.

Transceivers with rotary band switches normally have the lower frequency bands (eg 80 metres) near the anticlockwise end of the switch's rotation and the higher bands (eg 10 metres) selected when the switch is turned clockwise. Similarly, when you

turn the VFO knob of your transceiver clockwise, the frequency selected will increase.

The controls on the prototype behave in a similar way. This is achieved by switching in the whole coil (which may be required on low frequency bands) when the rotary switch is turned to its fully anticlockwise position (position 1 in Table 1 above) and successively smaller portions of the coil as the switch is moved clockwise (position 10 in Table 1 above).

These smaller sections of the coil will be required when operating on higher frequency bands such as 10 and 15 metres.

The variable capacitor is configured in a similar way; as the reduction drive is turned clockwise, the capacitance is reduced, and the unit is tuned to a higher frequency. However, it is important to note that this cannot be achieved with some variable capacitors because a clockwise movement in the shaft increases rather than decreases the capacitance.

Most of the parts for the resistive antenna bridge are mounted on a piece of unclad matrix board, which is mounted to the case with screws and stand-offs.

| Table 1               |                                |
|-----------------------|--------------------------------|
| Switch position       | No of turns from start of coil |
| 1 (fully anti-c/wise) | 55                             |
| 2                     | 30                             |
| 3                     | 20                             |
| 4                     | 13                             |
| 5                     | 9                              |
| 6                     | 6                              |
| 7                     | 4                              |
| 8                     | 3                              |
| 9                     | 2                              |
| 10 (fully c/wise)     | 1                              |

Component values are not particularly critical except for the seven 27 ohm resistors. The function of these resistors is to provide a reasonably constant 50 ohm load for the transceiver when the L-match is being adjusted. For this reason they will be required to dissipate a fair amount of RF power. Two-watt resistors were used in the prototype. This proved adequate for use with a twenty watt transceiver provided the carrier was wound down to 5-10 watts and tuning-up was completed in a reasonably short length of time.

Many modern 100 watt transceivers can be wound back to produce the few watts required for this tune-up process.

No accidents have been had with the prototype unit. However, if you routinely wish to use it with high power equipment, and have a habit of forgetting to wind the power back, it should be possible to replace each 27 ohm resistor with four two-watt 100 ohm resistors to increase the unit's power handling capacity.

Do not be tempted to use wire-wound resistors - their power ratings may look attractive, but their self-inductance makes them unsuitable for a project such as this.

The Tune/Operate switch is a medium-sized DPDT unit. Again, this has given reliable service with 20 watt equipment. However, it might be wise to use a larger type if you intend to use this unit with 100 watt gear.

Other parts are not critical. The panel meter in the prototype was salvaged from a non-working CB transceiver. The scale was whitewashed (using correction fluid) and a new one written over it with Biro. This operation calls for a fair degree of manual dexterity - it is easy to damage the meter movement if you are careless. If in doubt, leave the meter as is. The variable resistor could also be a salvaged item; in this case the volume control from a radio or a tape recorder will be fine.

A pair of binding posts was used for the antenna and earth terminals. Use colour coding to avoid confusion. The connection to the transceiver is either via a BNC or SO-239 socket.

Coaxial cable should be used between this and the transmitter section of the Tune/Operate switch to minimise stray capacitance and inductance. Either RG-58 or RG-174 will be satisfactory.

## Adjustment and Use

Adjusting L-type couplers is simple. Set the inductance for maximum noise in the receiver. Then adjust the variable capacitor to obtain a further increase in noise. Apply a few watts carrier and switch to 'Tune'. Position the sensitivity control so that the meter is reading full scale. Adjust the variable capacitor for a dip in the reading on the meter. If it is not possible to get a zero reading, try a different combination of coil and capacitor settings until this can be achieved. At this point the system is tuned up, and the unit may be switched to 'Operate'. This step bypasses the resistive bridge and allows the full output from the transceiver to reach the antenna. Note that when changing bands or making significant frequency changes within a band, this process should be repeated to assure full power transfer.

A counterpoise may or may not be required. Because the antenna is high impedance, adding one will not normally boost radiation efficiency or materially affect the settings of the L-match. However, in some cases, going without a counterpoise can cause RF to get back into the transceiver and spoil operation. A short length of insulated wire connected to the earth terminal of the L-match minimises this risk. One or two metres is usually enough.

In practice, the system described has proved easy to use, and represents a good way of getting multi-band operation from a single length of wire. There are no lossy traps or feedlines, and the antenna is easy to erect. Interstate SSB contacts have been made with this antenna on both eighty and forty metres with powers of between two and twenty watts. Though no detailed measurements have been made, performance on the lower bands seems to be roughly similar to a half-wave dipole at the same height.

## References and Further Reading

1. Moxon, *LA HF Antennas for All Locations*, RSGB, 1982, page 154.
2. *The Radio Amateur's Handbook* - 1977, ARRL, 1976, page 599.
3. Cook, R & Fisher, *R Amateur Radio*, May 1997, page 20.
4. Butler, *L Amateur Radio*, September 1997, page 15.



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## ■ People

# A Three Way QSO with Andy Thomas VK5MIR

Ian J Hunt VK5QX  
8 Dexter Drive  
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This may seem an unlikely occurrence. It certainly would be unusual for something like that to occur in connection with an orbiting Space Station. However, I have one major advantage and that is to live in the same city as the father of Andy Thomas VK5MIR/KD5CHF.

This situation has allowed me to talk to Andy as well as his father, hence the three-way-QSO approach. As a result, I have been able to gather information of a nature regarding our own South Australian astronaut which would otherwise probably never come to light. Let me provide you with a somewhat different insight than is usually available concerning such a celebrity as Andy Thomas.

You may already be aware that we were able to obtain a reciprocal licence for Andy through the Australian Communications Authority to allow the use of the callsign VK5MIR as a Special Event station. It certainly has been a special event to have an Australian astronaut circling the globe with his two Russian companions, Talgat Musabayev RO3FT and Nikolai Budarin RV3FB and R4MIR.

Most of you would not be aware of much of Andy's background which eventually led him on the path to space.

Andy came from good Australian stock. His forebears were amongst the first European settlers to arrive in South Australia on the ship HMS Buffalo. One of his great great grandfathers acted as naturalist to the famous early Australian explorer John McDouall Stuart. Andy's father, Adrian Thomas, was born and educated in South Australia.

It is interesting to note that Adrian also managed to get off the ground in a big way when, during the Second World War, he went to England to train as a pilot and became the pilot and captain of one of the famous Lancaster bombers which operated over Europe during those hostilities. From Adrian we learn a little about Andy's background from his (Andy's) younger years.

Andy has always been an individualist and yet always seemed to have the ability to work along with others. In his youth he pursued interests such as hang-gliding, scuba diving, spear fishing, martial arts (Tae Kwan Do) as well as enjoying athletics in general. He loved to make things, amongst which was a spear-gun to help in his underwater fishing. This was a successful project. He did not show out at first as a particularly brilliant student but, from the age of around 10 years began

to improve considerably to the extent that he came to be recognised as a "top" student.

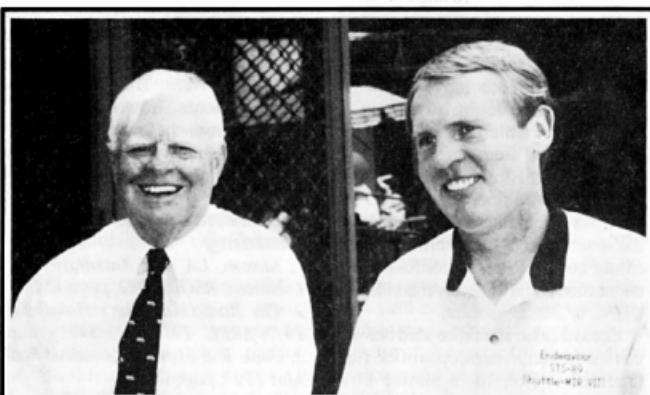
Amongst the items that Andy made were two that no doubt came to have special significance. These were a Mercury style Space Capsule fabricated from a "Clag" (sticky paste) bottle (this item is still in existence), and a model about 38 centimetres high, built from a kit, of a "Redstone" rocket complete with capsule and a one centimetre sized astronaut.

Andy, only sometimes referred to by Adrian as Andrew, attended St Peter's (Anglican) College in Adelaide. Whilst there he was a member of the Cadet Corps and rose to become a Cadet Officer Platoon Commander.

No doubt this form of disciplinary training has stood him in good stead throughout his most eventful life. Whilst at school he took a great interest in science and mathematics.

He attended the Adelaide University and graduated from there with First Class Honours as a Bachelor of Engineering. Subsequently he went on to a Doctorate of Philosophy specialising in mechanical engineering with a major in Aeronautical Science.

Reverting to descriptions of his earlier days, Andy is described by his father as a lad who was an ideal companion in a father-son relationship. They were always good friends and if any matters arose between them they could always talk them through.



Adrian and Andy Thomas.

Endeavour  
ST-549  
Shuttle-MDR VST

Adrian Thomas is justifiably proud of his son's achievements. He wears with pride a sports shirt which carries the special embroidered cloth badge emblem produced by the Russians for this special mission of Andy's. It depicts both the MIR Space Station and a Space Shuttle tethered together with a rising sun, symbolic of the dawn of space exploration. The name "Thomas" is shown written in both the English and equivalent Russian lettering with the word "MIR," meaning "Peace," also in both languages. This is certainly a unique badge.

Andy Thomas pursued a career which took him to the United States. There he worked in a variety of positions which seemed to increase in importance and value as far as his career was concerned. There also seemed to be a passion regarding his work which could thus probably be described as being his hobby as well. However, his interests were always towards space exploration generally.

Away from work, Andy enjoys a wide range of music from Beethoven to the Beatles. He has, in fact, taken a "classical" guitar with him on his space mission to MIR. We are not sure whereabouts on the spacecraft he goes to practice. He has also not given any "on air" demonstrations of his playing. At least, not that we are aware of.

So, here we have provided something of the more personal aspects of Andy's background. It would seem, looking in retrospect, that his experiences have flowed along a path which seemed destined for the work he is now doing.

You might note, for example, that becoming a qualified scuba diver in his earlier years served a most useful purpose during his astronaut training when it became necessary to carry out exercises underwater so as to simulate some sense of weightlessness.

His nature shows through his operating on the amateur two metre band. He has a pleasant and very calm manner which comes through as being in complete control over the situation in which he finds himself. Whilst not an experienced amateur radio operator, he deals with the "dogpiles" on frequency with aplomb. Many of us would, no doubt, wilt in these situations.

One thing that has been a delight for me is to be able to hear his descriptions of what is going on, the nature of his living conditions, and his obvious enthusiasm regarding making contact with as many other operators as possible and finding out something about them as people.

It may just be coincidence, but it has seemed to me that Andy Thomas may give some extra attention to stations which call from South Australia as he flies over our country.

Another aspect of real interest are his descriptions of the views that he can take in from his high altitude location. These cover items from the colours of the auroras to seeing rivers, city lights, stars, cloud cover, deserts, etc. As well, you can hear some excitement in his voice as he comments that he has visited a particular place with which he is in radio contact.

---

**... there is no doubt  
that he has made great  
use of the amateur  
radio facilities on MIR.**

---

A very moving moment took place as, on one pass, Andy described to me the lights of Adelaide as he passed overhead, naming the various roads he could see and identifying portions of the city which were familiar to him. It seemed to me that he felt very close to home during these moments.

The comment has been made that he is probably the most active of all the astronauts that have flown in space. This may or may not be the case; however, there is no doubt that he has made great use of the amateur radio facilities on MIR.

For myself I have been excited to be part of this adventure. My contacts with VK5MIR have been on a regular basis using both packet and voice transmissions. They have allowed me to assist Andy in making arrangements for him to speak to many other members of our community through voice recordings of messages to particular groups of people. These have ranged from a

recorded video address to families assembled in the Adelaide Festival Theatre for an orchestral event, to a voice transmission to juveniles spread over the Flinders Ranges in the north of the state undergoing correctional training to help rebuild their lives.

In each case Andy has been able to provide a message which has been of value and most certainly of an inspirational nature.

**A Message to the  
Amateur Radio Operators  
of Australia**

Here is the text of a message which Andy Thomas provided to the amateur radio operators of Australia and recorded during a recent pass over Adelaide. This message was played on the VK5 Division Sunday morning news broadcast on 10 May.

*"This is Andy Thomas on board the Space Station MIR with a greeting to all the amateur radio operators and enthusiasts in Australia. I want to thank you all for the messages you send and the voice contacts that we've been making.*

*"I am sorry that sometimes I am not able to get to the radio at times that are very convenient but I am under a fairly heavy work schedule. But I do appreciate receiving your messages. I can't always respond to them, the packet messages particularly, because we get so many, but they are fun to receive none-the-less.*

*"So I thank you all for providing me with this great source of pleasure while I have been flying up here on MIR. 73 from Andy Thomas on Space Station MIR."*

When you read this article, Andy will be within days of returning to earth. This part of his space adventure will be finished but there will be much more ahead.

I believe that amateur radio, particularly in this country, has benefited greatly by an event the like of which has not been seen before. The social value of the hobby has been given a great boost, mainly due to Andy's efforts, but also helped by the manner in which so many radio amateurs have taken him to heart and played their part as well in spreading the gospel of our marvellous hobby. I hope we can build on these benefits in the future.

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B3052

# ALARA

## Sally Grattidge VK4SHE

ALARA Publicity Officer  
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Tel: 077 788 642

Packet: VK4SHE@VK4RAT.IQN.QLD.AUS.OC  
E-mail: rgrattid@ozemail.com.au

## Welcome New Members

Robin KJ7BI, sponsored by Norma VK6PNS; and Ethel ZL1BWQ, sponsored by Margaret VK4AOE.

## Old Member?

Denise VK5YL is now officially an Old Timer having held her licence continuously since June 1956.

## Silent Key

Betty ZL1UBZ, who many will remember from the ALARAMEET in Perth, passed away in February due to cancer. ALARA



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members extend sympathy to OM Bob ZL1BBZ and family.

## MIR Contact

Meg VK5AOV

One of my most exciting amateur radio events occurred one Sunday morning in March when I made a contact with the orbiting space station MIR.

Over the previous couple of weeks I had been using a satellite tracking computer program to follow the progress of MIR and listening for transmissions from Dr Andrew Thomas VK5MIR, the first Australian in space.

In the context of the space station working by a day based on Moscow time, it was most likely that a packet contact would be made during our daylight hours when the astronauts were asleep. Even so, when I heard the packet transmissions on 145.985 MHz that morning and decided I would have another go, I was very surprised when my computer announced that I was connected to R0MIR-1, and the callsign appeared in colour on the bottom of my screen.

The list of commands: B, J, K, L, R, S, or Help>... available was there, and the information that there were 17 messages which could be read and their numbers. But, alas, MIR had disappeared over the horizon by then, and I was unable to continue the contact. In fact, I must have made contact off the back of the beam when MIR was low in the sky and with only 2.75 watts; quite amazing when I think of the trouble I have at times in digipeating through VK5RAD-3 to VK5WI in Adelaide.

Now I shall have to try for that elusive phone contact. I have heard VK5MIR, but wonder whether I shall be able to speak to an astronaut?

## Message from Argentina

Patricia, a YL Geography teacher in Quilmes City, Province of Buenos Aires, Argentina is looking for contacts from all over the world. Her Packet address is LW4EJM@LUI1EA. 1876.BA.ARG.SA.

## Tower of Strength

Christine VK5CTY and OM Geoff surprised people at a Blanchetown clearing sale when they bought a windmill tower, stating that it would not be used for pumping water, but for erecting antennas so that they could talk to other radio buffs in distant countries. The locals were so intrigued that the story appeared in a rural newspaper with photograph - a nice bit of PR for amateur radio.

Christine and Geoff plan to make maximum usage of their 30 hectares at Swan Reach by erecting several Vee beams, three

or four wavelengths to a side, held aloft by a series of towers. Christine wants to avoid guy lines as they may be a problem for kangaroos, but my experience is that the OM with tractor and slasher is a much greater hazard!

## Svalbard (August)

As the date for the International YL meet in this northern outpost draws nearer, you may wish to know more; and you can by accessing <http://home.su.no/hometbjerke/svalbard/> Gwen is representing ALARA, and we look forward to hearing all about it later this year.

Meanwhile a brief look at the program: sightseeing in Longyearbyen, YL forum, banquet, Russian lunch, boat trip on the Isfjord, sightseeing in Barentsburg, the Midnight Sun, fossil hunt near a glacier, the Plateau Mountain, glacier walking, kayak tour, coal mine tour and scenic flight. Wow!

## Next Year in Brisbane

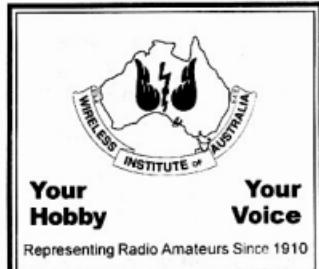
Don't forget our own ALARAMEET next year on 2 and 3 October in Brisbane. Bev has already booked the venue, the RSL Community Hall, Kedron. Put the Ug boots and the chilblain cream in the cupboard, check the elastic in your bikini and plan your holiday around this event!

## A Good Scout

Jenny Housden has certainly done her bit spreading the word about amateur radio to young people. Her JOTA station last year had 490 participants! In January her team took handbells, HF, CW, linked computers and walkie-talkies to the Oakbank Racecourse to involve Guides and their disabled charges at the annual Edna Ayers camp for children with disabilities.

In March Jenny ran the first training in ARDF for the girls at Woodhouse, the Scout camping ground at Piccadilly in the Adelaide Hills. The equipment used was put together by three radio amateurs and consists of receivers built from the kit used by Queensland radio amateurs, modified 828s as transmitters, and home brew antennas.

ar



# AWARDS

John Kelleher VK3DP

Federal Awards Officer

4 Brook Crescent, Box Hill South, VIC 3128  
Tel: 03 9889 8393

## DXCC

The ARRL Membership Committee announced on 13 March that both the ARRL DXAC and the Awards Committee voted to delete Southern Sudan ST0. Contacts made before 1 January 1995 will count for the deleted country. The current countries are now 328, and the 'deleted' are 58.

The 'deleted country' concept will come to an end when the new DXCC 2000 rules are implemented with effect from 31 March 1998. According to the new rules, no new countries will be added to the deleted list in the future. Deleted 'entities' simply will be removed.

Recent activity from Temotu Island by H40AA is at present being considered for addition as a 'new' country. There is also a rumour circulating that any and all operations from P5 North Korea have been termed 'illegal'.

I have included both of these 'countries' in the list which was published in May *Amateur Radio* in anticipation of any movement by the ARRL DXCC Committees.

## QSL Cards

It has come to my notice that out-going QSL cards are being improperly addressed. The general rules for addressing out-going cards state that the addressees call sign MUST appear in the top right-hand corner of the QSL card (front or back). This is a requirement to assist sorting of cards by QSL staff, not only locally but by Amateur organisations worldwide, where the number of cards runs into the thousands. A computer-generated label is just not enough.

Concerns have been raised about the failure by operators to exchange QSL cards, particularly on VHF and UHF bands. This situation was brought to my notice by an avid user of these higher bands, who stated that, even though he personally sent cards out for all contacts, he was being virtually 'blocked' from applying for the **Grid Square Award** because of the lack of cards to verify his contacts.

One of the reasons for this discrepancy has been the ever rising cost of having cards printed professionally. An amateur friend of mine, who dabbles with computers, has been printing his own QSL cards for some time. This way, he only prints what he requires, and it is a veritable short-cut when he operates using a special call sign.

In answer to my question on original costs, he said that this process is cost-effective, and that he was now 'in front' when compared to other methods of printing.

## DX Activity

Listening on the bands, I have been surprised, even excited, by the increasing number of DX stations appearing on the HF bands. It would appear that sun spot numbers are rising over the 100 mark, while the A and K indexes, even though a little "fluky", have begun to settle down. With a little persistence I may be able to get those last 25 countries!

## The Activity Group of Belarus (AGB)

AGB General Rules. All AGB awards may be obtained by licensed amateurs and SWLs. Your application (or GCR list) should be checked and signed by two other amateurs. The fees for all awards is \$US5.00 or 10 ICRs.

### Old Minsk

This award may be applied for by all stations who have made contacts with the City of Minsk, EU1, EW1 and EV1 prefixes. DX stations require two contacts.

### Old Belarus

This award may be applied for by all stations who have had contacts with Byelorussian ancient Cities. DX stations require two cities. The list of cities is:

EU1/EW1 - Minsk (CT, FR, LE, MO, OK, PA, PM, SO, and ZA);

EU2/EW2 - Borisov (BI), Volozhin (WO), Dzerzhinsk (DZ), Zaslavl (MI), Kopyl (KL), Kletsk (KC), Molodetchna (MD), Nesvizh (NE), Slutsk (SL), and Tchervien (ER);

EU3/EW3 - Brest (LN, MK), Berieza (BE), Vysokoe, David-Gorodok and Drogotchyn (DR), Ivanovo (IW), Kamenets (KA), Kobrin (KO), Kosovo Liakhovitchi (LH), Pinsk (PI), Pruzhany (PV) and Stolin (ST);

EU4/EW4 - Grodno (LS), Oshmyany (ON), Volkovysk (WW), Lida (LJ), Mosty (MW), Novogrudok (NG), Slonim (SJ) and Smorgon' (SN);

EU6/EW6 - Vitebsk (OB, PR, VE), Braslav (BS), Verkhnedvinsk (WD), Disna and Dokshitsy (DO), Orsha (OA), Polotsk (PO) and Tolotchin (TO);

EU7/EW7 - Mogilev (CN, LM, OR PW), Bobruisk (LB), Bykhov (BY), Klimovitchi (KM), Krichev (KW), Msticlav (MS) and Slavgorod (SA).

EU8/EW8 - Gomel (CE, GO, OS, SK, VD), Zhlobin (VL), Mozyr' (MZ), Petrikov (PE), Rogatchev (RG) and Tchetchersk (EE). **PK-Belarus (Prefixes of Belarus)**

This award may be applied for by all stations who prove contacts with Byelorussian stations with different prefixes. Prefixes are defined according to the WPX rules, eg EU1, EU2, EU3; EW1, EW2, EV1, EV2; UC1, 2, 3, 6; UC50; RC2; UK2; RK2. DX stations need five prefixes. Stickers are available for each additional five prefixes.

### W-AGB-M (Worked with AGB members)

This award may be applied for by all stations who have had five contacts with AGB members, from the following list:

EU1AN (UC2AN, UC2ABH), EU1AO (UC2ACO, UC2AO), EU1AR (UC2AR), EU1CQ (UC2AFM), EU1EU (EU930EU, UC2ABO, UC2WA0), EU1DX (UC2ADX), EU2AA (UC2CED, RC2CA), EU2AW (UC2AW), EU3FT (UC2LFT, UC2CFT), EU4AA (UC2ICC, UC210), EU6AA, EU6EU (UC2WJ), EU7SN (UC2SN, UC2SKC), EU1ABA (UC2ABA), EU1BA (UC2BA), EU1EA (RC2AY), EU1MM (UC2AGL), EU1T2 (UC2AFE), EU3LB (UC2LB), EU6TU (UC2WB, UA9XHT), EU7KR (UC2SCX, UA0LCI), EU8VD, RA3LZ, RU9WB, RV1CC (UT1II, RB41NR), RV9WB, U5QQ, UT4UO, UY5ZZ (RB5QW), UY5YY (UZ100YY).

### Mirror Calls

This award may be applied for by all stations who have had five contacts with "Mirror Calls" stations, eg DL4LD, US4SU, UX4XU, DL2LD, LY2LY, DF4FD, etc. Stickers for each additional five.

### Double Calls

Requires five contacts with "Double Calls" stations, eg EW1EW, EU4EU, URSUR, UX0UX, LY2LY, etc. Stickers for each added five.

### Twin Calls

This award may be applied for by all stations who have had contacts with "Twin Calls" stations, eg UC2WAO, UA1ZA0; EU1AO, DL1IA0, RW6AO; EU1EU, DK2EU, SM5BEU, EU3EU, etc. Stickers are available for each additional five matching suffixes.

Further information on any of the above colour-printed awards may be obtained from the AGB Manager, Igor "Harry" Getmann EU1EU, PO Box 143, Minsk-5 220005, Belarus (e-mail: [getmann@axis.belpak.minsk.by](mailto:getmann@axis.belpak.minsk.by)) Do not post any mail enclosing ICRs or greenstamps to this address!

All applications for the above awards should be sent (for safety purposes) to the address of the Awards Manager, Valdas Slezas LY1BA, PO Box 67, Vilnius 2000, Lithuania.

# Contests

Ian Godsill VK3DID

Federal Contests Co-ordinator  
25 Monaco Street, Mentone VIC 3194  
E-mail: [vk3did@hotmail.com](mailto:vk3did@hotmail.com)

My sincere thanks to Peter VK3APN for his work over the last six years and his good, simple presentation. Well done, Peter. We shall miss you. I shall try to maintain that format, especially as we are entering the annual "busy period" of VK contesting. I look forward to helping all contestants, so please feel free to contact me as I settle in to this task.

73, Ian Godsill VK3DID

## Canada Day Contest (CW and Phone)

0000-2359z Wednesday, 1 July

This contest, which runs on 1 July each year to celebrate Canada's confederation, will take place this year on a Wednesday.

Bands are 160 to 2 m, CW and phone. Suggested frequencies are: (CW) 25 kHz up from band edge, and (SSB) 1850, 3775, 7075, 7225, 14175, 21250 and 28500 kHz. Check for CW activity on the half-hour. Note there are to be no CW QSOs in the phone sub-bands and vice-versa.

Any station can work any other once per band and mode. Exchange RS(T) and serial number; Canadians will send RS(T) and province/territory. Score 10 points for Canadian QSOs, including VE0, and two points for others. Canadians with RAC suffixes are worth 20 points. Multiplier is Canadian provinces and territories (max 12), counted once per band and mode: VE1/CY9/Y9NS; VE2/VA2 (QC, QU or PQ); VE3/VA3 (ON); VE4 (MB); VE5 (SK); VE6 (AB); VE7 (BC); VE8 (NWT); VE9 (NB); VO1/VO2 (NF); Yukon (YU or YT); and VY2 (PEI). Final score equals points x multiplier. Send your log and summary sheet by 31 July to: RAC, 720 Belfast Road #217, Ottawa ON K1G 0Z5, Canada.

## Jack Files Memorial Contest

4 July (CW), 11 July (SSB): 0800-1400z Saturday.

This contest honours the late Jack Files, a long-serving VK4 WIA Councillor. The object is for amateurs throughout VK/P2/ZL to work as many VK4 Towns and Shires as

## Contest Calendar June - August 1998

|           |                                       |          |
|-----------|---------------------------------------|----------|
| Jun 1     | Portugal Day Contest (SSB)            |          |
| Jun 6/7   | IARU Region 1 Field Day (CW)          |          |
| Jun 13    | QRP Day Contest (CW)                  | (May 98) |
| Jun 13    | Asia-Pacific SSB Sprint               | (Jan 98) |
| Jun 13/14 | ANARTS RTTY Contest                   | (May 98) |
| Jun 13/14 | South America WW Contest              |          |
| Jun 20/21 | VK Novice Contest                     | (May 98) |
| Jun 20/21 | All Asia CW DX Contest                | (May 98) |
| Jun 20/21 | ARRL Field Day                        |          |
| Jul 1     | Canada Day Contest (CW/Phone)         |          |
| Jul 4     | Jack Files Memorial Contest (CW)      |          |
| Jul 4     | NZART Memorial Contest (CW)           |          |
| Jul 4     | Australasian Sprint (CW)              |          |
| Jul 11    | Jack Files Memorial Contest (Phone)   |          |
| Jul 11    | Australasian Sprint (Phone)           |          |
| Jul 11/12 | IARU HF Championship                  |          |
| Jul 18    | Pacific 160 Metres Contest (Phone/CW) |          |
| Jul 18    | Colombian DX Contest (Phone/CW)       |          |
| Jul 24    | Zip 80 Metres Contest (Phone)         |          |
| Jul 25    | Waitakere 80 Metres Sprint (Phone)    |          |
| Jul 25/26 | RSGB IOTA Contest                     |          |
| Jul 31    | Zip 80 Metres Contest (CW)            |          |
| Aug 1     | Waitakere 80 Metres Sprint (CW)       |          |
| Aug 1/2   | YO DX Contest                         |          |
| Aug 8/9   | Worked All Europe (CW)                |          |
| Aug 15/16 | Remembrance Day Contest               |          |
| Aug 15/16 | Keyman's Club of Japan (CW)           |          |

possible, to encourage portable/mobile activity from the less populated VK4 towns and shires, and to serve as a warm-up for the Remembrance Day contest.

Sections are: (a) Single Operator Home; (b) Club Fixed; (c) Single Operator Mobile/Portable; (d) Club Mobile/Portable; (e) Stations outside VK; (f) SWL. Operate on 160, 80 and 40 m. Cross-band contacts are not allowed.

Exchange RS(T) followed by serial number starting at 001 and incrementing by one for each QSO, continuing when changing bands. Multi-transmitter stations should use separate serial numbers starting at 001 for each band. VK4 entrants will send their two-letter Shire code after their serial number.

Score one point per QSO with non-VK6 and two points per QSO with VK6. Each VK4 Shire/Code per band counts as a multiplier, also each prefix per band. To stimulate portable/mobile activity, portable/mobile stations can also claim one multiplier per band for each VK4 Shire/Town from which they operate. The final score equals total points times total multiplier.

In this contest only, single operators are allowed to have a log keeper. Club stations can use multiple transmitters, providing there

is only one station on each band at any one time. These transmitters need not be co-located and may even be in different Shires. Note: Stations can be re-contacted on the same band after one hour. Contacts with entrants in other contests are valid, as are DX contacts and those with VK6 stations are encouraged.

Attach a summary sheet showing the name, address and callsign of the entrant, section entered, points claimed and a declaration that the rules and spirit of the contest were observed. Send logs to: Jack Files Contest, GPO Box 638, Brisbane QLD 4001 to be received by Tuesday, 1 September 1998. Trophies will be awarded to the highest scorer in each section and the highest Novice overall, providing that there are at least five entrants in that section. Certificates will also go to the three highest scorers in each section.

VK4 City/Town/Shire codes are: AL Albert; AC Aramac; AN Arakun (R); AT Atherton; BL Balonne; BA Banana; BC Barcaldine; BO Barcoo; BH Baulinnia; BT Beaudesert; BY Belyando; BD Bendemere; BG Biggenden; BX Blackall; BV Boonah; BQ Booringa; BZ Boulia; BW Bowen; BN Brisbane; BS Broadsound; BP Bulloo; BU Bundaberg; BI Bungil; BK Burdekin; BR

Burke; BE Burnett; CB Caboolture; CS Cairns; CL Calliope; CA Caloundra; CM Cambooya; CD Cardwell; CP Carpenteria; CT Charters Towers; CH Chinchilla; CF Clifton; CY Cloncurry; CK Cook; CN Crows Nest; CR Croydon; DY Dalby; DL Dalrymple; DI Diamantina; DG Douglas; DU Duaringa; EA Eacham; ED Eidsvold; EM Emerald; EK Esk; ET Etheridge; FZ Fitzroy; FL Flinders; GT Gatton; GH Gayndah; GD Gladstone; GC Gold Coast; GI Goondiwindi; HT Herberton; HB Hervey Bay; HK Hinchinbrook; JE Jericho; JO Johnstone; JY Jondaryan; KY Kilcoy; KK Kilkivan; KG Kingaroy; KO Kolan; LA Laidley; LV Livingstone; LC Logan; LO Longreach; MC Mackay; MA Mareeba; MO Maroochydore; MB Maryborough; MK McKinlay; ML Milmerran; MN Mirani; MV Miriam Vale; MT Monto; MZ Mornington (R); MI Mt Isa; MM Mt Morgan; MU Mundubbera; MY Murgon; MX Murilla; MH Murweh; NN Nanango; NE Nebo; NO Noosa; PO Paroo; PD Peak Downs; PY Perry; PR Pine Rivers; PT Pittsworth; QL Quilpie; RC Redcliffe; RD Redland; RI Richmond; RH Rockhampton; RM Roma; RO Rosalie; SA Sarina; ST Stanthorpe; TB Tambo; TA Tara; TM Taroom; TH Thuringowa; TI Tiaro; TO Toowoomba; TE Torres; TV Townsville; WG Waggamba; WO Wambo; WR Warroo; WA Warwick; WH Whitsunday; WI Winton; WD Wondai; and WC Woocoo.

(R) = restricted area for radio transmission (Shire entry permit required).

### **Australasian Sprints (CW and Phone)**

*4 July (CW), 11 July (Phone), 1100-1159z*  
The Adelaide Hills Amateur Radio Club is pleased to announce the thirteenth annual Australasian Sprints to be held on 4 July (CW) and 11 July 1998 (Phone), between 1100-1159z.

Both these contests, on 80 metres, are open to all appropriately licensed amateurs in VK, ZL and P2 call areas using a single call sign. Contacts with any VK, ZL or P2 station during the contest may be counted, but a station may be claimed only once. A section is provided for SWLs. Certificates will be awarded to the highest scorers in each call area, overall winners, the highest scoring Novice operator in the CW contest only provided that this entrant is not entitled to another award for the CW Sprint, and to the highest scoring SWL log in each call area.

Frequencies: CW 3.500 - 3.700 MHz; Phone 3.535 - 3.700 MHz. Call CQ Sprint/CQ Test/CQ Contest. Exchange serial number starting between 001 and 999, reverting to 001 when 999 is reached. RS(T) is optional but may be required for any other concurrent contest. Logs must show time (UTC), callsign

of station worked (both stations for SWLs), and serial numbers given and received. Send cover sheet showing name and date of Sprint, callsign, name and address of operator, total number of contacts claimed and a statement that the operator has abided by the rules and spirit of the contest. Multi-operator club callsigns must list the callsigns and names of all operators.

Any special conditions (mobile, QRP, etc) should be mentioned in the statement, along with any comments. Send to: AHARS Contest Manager, PO Box 401, Blackwood SA 5051. Logs may be sent by packet to: [VK5AFO@VK5WI.ADL.#SA.AUS.OC](mailto:VK5AFO@VK5WI.ADL.#SA.AUS.OC) or by e-mail to: [cavid@picknowl.com.au](mailto:cavid@picknowl.com.au) by Friday, 14 August 1998.

### **IARU HF Championship (CW and Phone)**

*1200z Sat to 1200z Sun, 11-12 July*

This popular contest runs on the second weekend of July each year. Bands are 160 - 10 m. Categories are single operator: CW only, phone only, mixed; multi-operator: single transmitter mixed mode only. Multi-operator stations must remain on a band for at least 10 minutes at a time (exception: IARU member society HQ stations may operate simultaneously on more than one band with one transmitter on each band mode, providing only one HQ callsign per band is used).

Exchange RS(T) and ITU zone (P2 = 51, VK4/8 = 55, VK6 = 58 and VK1/2/3/5/7 = 59). HQ stations will send RS(T) and official society abbreviation.

Claim one point for QSOs within own zone or with a HQ station, three points for QSOs with a different zone in own continent, five points for QSOs with different continents. Multiplier is total ITU zones plus IARU HQ stations worked on each band. Final score is total QSO points from all bands x sum of multipliers from each band.

Include a dupe sheet for 500+ QSOs. Send logs postmarked by 8 August to: IARU HQ, Box 310905, Newington, CT 06131-0905, USA. Official forms and an ITU zone/prefix/continent map can be obtained from the same address on receipt of a large SASE with two IRCs or equivalent. Certificates to the top scorers in each category, in each state, ITU zone and DXCC country. Also, stations with 250+ QSOs or 50+ multipliers will receive achievement awards.

### **NZART 80 m Memorial Contest (Phone/CW)**

*0800-1400z Saturday, 4 July*

VKs are invited to join ZLs in this annual contest to commemorate amateurs lost in World War II. It is open to single operator stations on 80 m, fixed and mobile. The

contest has six operating periods, each of one hour, from 0800-1400z.

A station may be contacted TWICE during each operating period (once on phone and once on CW), providing that such contacts are not consecutive. Exchange RS(T) plus serial number commencing at any number between 001 and 300 for the first contact. On phone score 15 points for the first QSO with a scoring area, 14 points for the second QSO with that area, descending to one point for the 15th and subsequent QSOs with that area.

The same scoring system is used with CW, except that QSO points remain at five for the 11th and subsequent QSO with that scoring area. Scoring areas are ZL and VK prefix areas and DXCC countries. The rules for SWL entrants are similar, except that the callsigns of the stations heard and being worked must be given and only the cipher of the station heard is required.

Send logs and summary sheets ASAP to: Memorial Contest, PO Box 20332, Auckland 7, NZ. Nominate the category entered (Open; Phone; CW; Beginner's CW; QRP; Home-made SSB) and include a points summary showing the number of QSOs and points for each VK/ZL call area worked. Certificates will be awarded to the top three scoring VKS.

### **Pacific 160 m Contest (CW/Phone)**

*0700-2330z Saturday, 18 July*

This contest, slightly enlarged this year to include all Pacific Islands, is scheduled for the third Saturday of July each year. The objective is for P2, ZL and VK stations to work as many local and overseas stations as possible on 160 m. DX stations are encouraged to participate, but may only work P2, ZL and VK.

Sections are CW, Phone and SWL (all single operator). Exchange RS(T) plus serial number. Stations should claim one point per QSO with their own call area, two points for other call areas in VK or ZL, three points for Pacific Islands (ZK1, VK9, P2) and five points for far DX countries. For VK and ZL entrants, if the number in your callsign differs from your actual location, please follow your callsign with the appropriate number to indicate your location.

The multiplier is the number of ZL and VK call areas worked, plus the number of OTHER DXCC countries worked. Final score equals total QSO points times multiplier.

Certificates will be awarded to the top-scoring stations in each section, in each call area of ZL and VK, and in each DXCC country.

Send your log, signed summary sheet and any comments to: Ian Godsill VK3DID, 25

Monaco Street, Mentone VIC 3194, Australia, to be received by 17 August 1998.

Logs on 3.5 inch disc in ASCII, or via e-mail, gladly accepted.

### **Colombian Independence Day Contest (CW/Phone)**

*0000-2400z Saturday, 18 July*

This is a world-wide contest, all bands 80-10 m. Categories are Phone and CW (not mixed); single operator (single all band), and multi-operator (single and multi-transmitter). Exchange RS(T) plus serial number. Score five points per HK QSO, three points per QSO with stations in another country, one point per QSO with stations in same country, and 10 points for QSOs with official HK HQ stations.

The multiplier is the total countries, including HK, plus HK call areas worked on each band. "HK" includes all Colombian prefixes. Final score is total QSO points from all bands by sum of multipliers from all bands. At least 2% of QSOs must be with HK and 10% with stations outside your own country. Send logs postmarked by 28 August to: Colombian Independence Day Contest, Apartado 584, Santafe de Bogota, Colombia.

### **Waitakere 80 m Sprint**

*Phone: 1000-1100z Saturday, 25 July*

*CW: 1000-1100z Saturday, 1 August*

This 80m sprint contest is open to all ZL and VK amateurs.

In fairness to other amateurs, it is requested that no linear amplifiers be used in this contest. Call "CQ Sprint" and exchange serial numbers commencing at 001 and incrementing by one for each contact. RS(T) is not required.

Logs must show stations worked, with serial numbers sent and received. Attach a summary sheet and send log to: Sprint Contest Manager ZL1BVK, 14 Takapu Street, Henderson, Auckland 1208, NZ to arrive by 1 September. Alternatively, logs may be sent via packet, using three columns only with no commas or other delimiters, to: ZL1BVK@ZL1AB. Certificates will be awarded to the overall winner, the best score in each ZL call area and the three best VK scores.

### **'Zip' 80 m Contest (Phone/CW)**

*Phone: 0900-1000z Friday 24 July*

*CW: 0900-1000z Friday 31 July*

This is a new contest for low power enthusiasts from ACORNZ, and all VK amateurs are invited to join in, irrespective of power levels.

Call "CQ Zip" and use centre frequencies of 3,680 kHz (Phone) or 3,530 kHz (CW). Exchange RS(T) plus serial number. Score one point for QRP to QRO ZL; five points

for QRP to QRO DX; five points for QRP to QRP ZL and 15 points for QRP to QRP DX. The reverse applies to DX stations. "DX" is any station outside ZL. No multipliers. Honour system applies. Sign / QRP if using up to five watts CW or 10 watts Phone.

Send logs showing mode, date, time, station worked, RS(T), points claimed per contact and total points to: Bill Cox ZL2BIL, 5A Konini Grove, Raumati Beach 6450, NZ, by 14 August 1998.

### **RSGB Islands On The Air Contest (CW/Phone)**

*1200z Sat - 1200z Sun, 25-26 July*

This contest is intended to promote contacts between qualifying IOTA island groups and the rest of the world and to encourage expeditions to IOTA islands. Sections are: IOTA Island Stations (ie those with an IOTA reference); and World and SWL. You can enter as CW only, SSB only, or mixed mode. Single operator stations can enter as unlimited (no time limit), or limited (12 hours max, with off periods at least 60 minutes long and marked in the log).

Use 80 - 10 m, avoiding 3.56 - 3.60, 3.65 - 3.70, 14.06 - 14.12 and 14.30 - 14.35 MHz. Exchange RS(T) plus serial number, plus IOTA reference number if applicable. Stations can be contacted on both phone and CW on each band. Use the same serial numbering system for both modes.

Score 15 points per QSO with an IOTA station (including UK), five points for stations in another DXCC country, and two points per QSO with one's own country or IOTA reference. The multiplier equals the total IOTA references per mode per band, added together. The final score equals the total QSO points x the total multiplier.

For each band (but not each mode), submit a separate log, multiplier list and dupe sheet. Send your log and summary sheet to: RSGB IOTA Contest, PO Box 9, Potters Bar, Herts EN6 3RH, UK postmarked no later than 28 August. A comprehensive range of awards is offered to the leading stations in each category, section and continent.

### **Results of the VHF/UHF Field Day 1998**

*from John VK3KWA*

This year there were 31 logs from 29 entrants. VK7 missed out, VK6 had only one log and VK2 could only manage three logs. Four logs had to be re-scored. Please check your sums and don't forget to claim the grid square you are operating from.

The scores give some useful pointers for those wishing for bigger scores; either add extra bands, or go "roving" (good if you only have equipment for a couple of bands).

I kept a close ear on 50 MHz and did not hear or have reported to me any contest exchanges below 50.150 MHz. Thanks to all participants for their considerate operating habits.

Congratulations to all entrants, especially those who went into the field. Special congratulation to Wal Howse VK6KZ for setting a national 24 GHz record of 142.7 km during the Field Day.

From time to time I make special awards to those who brave the elements and this year's endurance award goes to Norm McMillan VK2XCI, who had to cut short his operation in the face of lightning strikes - perhaps because he was perched on top of a disused copper mine?

Basic results are listed below, as space does not permit a full listing of all bands.

#### **Section A - Portable, Single Operator, 24 Hours**

|        | <i>Call</i> | <i>Grids</i> | <i>Total</i> |
|--------|-------------|--------------|--------------|
| VK3WRE | 37          | 3277         |              |
| VK4OE  | 28          | 2549         |              |
| VK2TWR | 20          | 1591         |              |
| VK6KZ  | 12          | 1548         |              |
| VK4IS  | 4           | 699          |              |
| VK5XY  | 22          | 690          |              |
| VK3DQW | 14          | 560          |              |
| VK2XCI |             |              | Check Log    |

#### **Section B - Portable, Single Operator, 6 Hours**

|        |    |      |  |
|--------|----|------|--|
| VK2SH  | 18 | 1547 |  |
| VK3TBM | 18 | 1480 |  |
| VK3AFW | 21 | 1183 |  |
| VK6KZ  | 9  | 1063 |  |
| VK3TBM | 10 | 863  |  |
| VK3TKO | 13 | 770  |  |
| VK5AJ5 | 10 | 603  |  |
| VK2ANK | 5  | 423  |  |
| VK1PK  | 3  | 224  |  |

#### **Section C: Portable, Multi-Operator, 24 Hours**

|        |    |      |  |
|--------|----|------|--|
| V10G   | 51 | 3814 |  |
| VK4IF  | 44 | 3533 |  |
| VK1ACA | 43 | 3116 |  |
| VK5ARC | 28 | 2058 |  |
| VK5AR  | 30 | 1923 |  |
| VK3ER  | 34 | 1917 |  |

#### **Section D: Home Station, 24 Hours**

|        |    |      |  |
|--------|----|------|--|
| VK3KLO | 31 | 2789 |  |
| VK3TMP | 32 | 2784 |  |
| VK3BDL | 26 | 1929 |  |
| VK3CY  | 21 | 1710 |  |
| VK1WJ  | 12 | 528  |  |
| VK5NY  | 14 | 524  |  |
| VK4PJ  | 4  | 447  |  |
| VK3JK  | 8  | 334  |  |

Thanks to VK3APN, VK5OV, VK3KWA, ZL2BIL, NZART and RSGB for information.

# How's DX?

Stephen Pall VK2PS  
PO Box 93, Dural NSW 2158

## Pile-up Behaviour

Not so long ago I received a letter from an active DXer who asked me to keep his identity confidential. The letter was disturbing because it reflected on the questionable behaviour of some DXers who, according to the writer of the letter, were behaving in an unethical manner.

The writer referred to a very short activity from one of the rare islands in the Pacific where, due to a variety of circumstances, bedlam had taken over the calling sequences of the DX operator. I quote from the letter: "The frustration showed with the usual results, and unfortunately some VOs were in there with the worst. They called out of turn and over the top of him. I switched off in disgust. Anyone who is so obsessed with working that almighty 'new one', that they have to engage in unethical practices should get out of the shack and get a life. All in all, it was a sorry display, the extent of which I haven't heard for quite a while".

Harsh words indeed. I think we all should examine our own conscience as to whether or not our own behaviour on the bands reflects the comments of the letter writer? A good example of better DX pile-up behaviour is that of the Japanese operators; please listen to their pile-ups. As soon as the DX station returns the call of one of them, there is instant and total silence. The short exchange and acknowledgement of the reports continues without any interference. This takes about five seconds. The behaviour of the rest of the amateur world is generally not as good. The worst offenders are the southern Europeans.

So, let's make a 'new year' resolution, even though we are already in the middle of the year. We have to train and try to be better operators by listening more, acting with 'slow hasty' and with more consideration for the needs of others!

## DX Expedition to Rowley Shoals - VK9

Malcolm, the well known Australian 'island activist' announced, on 1 May at the IOTA

1998 Convention held on the Canary Islands, the proposed 'ultimate' island hopping - a DXpedition to Imperieuse Reef, part of the Rowley Shoals.

Malcolm VK6LC was the invited guest speaker at the Convention. According to the plans, the DXpedition will take place during next year in the months of June-September 1999. The shoals are located in the Indian Ocean at a distance of 180 nautical miles (333 km) due west of Broome in the tropical far north of Western Australia (17° 35' S, 118° 55' E).

The Rowley shoals consist of three atolls. The most northern is Mermaid Reef; in the middle of the group is Clerke Reef; and further south is Imperieuse Reef. The only automatic light and weather station is situated here for the group. The reef is 18 km long and approximately 10 km wide with a small island, Cunningham Island (800 m long and 250 m wide), above the high water mark.

The proposed charter motor sailing yacht was built in 1983. It has a 24 metre aluminium hull, a 5.2 knot cruising speed with sails, and a "friendly" charter price of \$2000 per day. Government landing permission, transmitting authorisation and a DXpedition special call have all been obtained and approved.

## New DXCC Entities?

I trust by now every DXer understands that the revamped DXCC rules replace the former "country" description with the word "entity". From now on we will talk about new DX entities and not new DX countries.

The revamping of the new rules revised the former rule of "separation by water 225 miles distance" to the more manageable 350 km, a reduction of 66 km in the required distance. This new rule opened up a number of possibilities for the creation of new DXCC entities for the DXCC award.

Three months ago we took part in the scramble to work a possible new target, the Temotu Islands H40.

Two months ago two more new candidates emerged for the much sought after "new entity". The Marquesas Group is composed of nine islands and is about 1500 km north-north west of Tahiti (19° 0' S, 139° 5' W). Total population is 6,548 with a land area of 661 square kilometres. Kan JA1BK operated from this group as FO0MIZ from 10-12 April, ending up with 2,801 QSOs on 80 to 12 metres CW and SSB. His QSL manager is G Hamilton VE3HO, PO Box 1156, Fonthill, ONL0S 1EO, Canada.

Immediately afterwards came an American father and son team, Bob Sr W6RS and his son Bob Jr W6KR who set up shop to satisfy the DX community's interest in a contact with the Marquesas Group. They were active from 21 to 28 April using the callsign

FO0FR. QSL for this activity goes to Richard G Whistler K6SLO, 716 Hill Ave, San Francisco, CA 94080-4242, USA.

The other possible new entity is the **Austral Islands**. These are located about 1,250 km south of Papete (22° 5' S, 152° 0' W). Rurutu Island has a population of 6,280 and covers 141 square kilometres of territory.

Kan JA1BK moved to this island with his FO0MIZ callsign on 14 April and was active until 17 April. A total of 3,523 QSOs was made on 80-10 metres CW and SSB. Again, QSLs for this second operation go to VE3HO as above.

A change of operators followed. JA1BK went home to Japan and the two American amateurs moved in and operated from 13 to 20 April. They used the call FO0FI and made 22,200 QSOs. QSLs go to K6SLO (who is none other than the former WA6SLO) and his address is above.

In the meantime, Paul F6EXV had filed a petition for both the Marquesas and Austral Islands to become two new entities for DXCC. The ARRL Membership Committee at its meeting in Dallas, Texas on 28 March asked the DXAC (The DX Advisory Committee) to add the Marquesas, Austral and Santa Cruz Islands to their agenda for discussion and recommendation.

Further research has revealed that four Polynesian amateurs, F05DS, F05LZ, F05MK and F05QG are living on the Marquesas Group. Most of these amateurs are only French speaking and congregate around 14118-14120 kHz, the calling frequency of the French in Oceania. However, Jose F05QG was heard lately (he speaks very little English), assisted by XE1L as co-ordinator, on 14190 kHz between 0200 and 0600 UTC. QSL via XE1L.

## Chatham Island - ZL7IR

Ed K8VIR is not a stranger to these columns. Ed is an American scientist studying the fauna of New Zealand. He travelled widely there and was active from the South Island on many occasions. Lately he was active from Stewart Island as ZL4IR whilst counting the brown Kiwi birds.

Between 19 and 26 March Ed was on Chatham Island. Here are some details from his letter to me: "On March 19, 1998 I arrived at the home of one of the world's rarest birds, the Chatham Island Black Robin.

"The Chatham Islands comprise a group of two large, and a dozen smaller, islands at 44° South and 178° West, placing them about 525 nautical miles (972 km) east of Christchurch, New Zealand. The climate is moderate with temperatures varying a little from an average of 55°F (13°C). The group is of volcanic origin. The main island of 90,000 hectares. Chatham Island, is

somewhat low lying in the north resulting in the formation of large areas of peat-land. There are a few hills and small volcanic peaks in the north-west. The predominant geographical feature of the island is the Whanga Lagoon, a large central brackish water lagoon of 16,000 hectares covering 20% of the island area. The islanders say that every corner of the Chathams is different. Pitt Island, one of the Chatham Islands, will be the first land to see the light of the new millennium, a fact that has the rest of the world highly excited.

*The radio conditions on the first day were good and I made a number of contacts with a system of phased wire arrays. Noise levels on 20 metres were quite high. Fifteen was quietest but the long distance propagation was only marginal.*

*Eighty and forty metres were up to expectations. I was surprised by the magnitude of the pile-up on 20 metres. There has been a number of ZL7 DXpeditions in the last year, and I expected much less activity. The twenty metre band was usually open all night to some area of the world."*

Ed is now on his way back home to the USA. QSL direct to him, Ed Hartz K8VIR, PO Box 480, Green Valley, AZ 85622, USA.

### **Bouvet Island 3Y0**

In a press release from the South Sandwich Island DX Group (SSIDXG), Tony De Prado WA4JQS announced that the planned activity

on Bouvet Island has been delayed again. Problems developed when the Norwegian Government, through the Nordst Polarinstiute, notified the DX group of plans for a major environmental project on Bouvet Island. Because of the environmental concerns and planned activities, the SSIDXG decided to postpone the DXpedition to a future date.

### **St Paul Island CY9AA**

Mike VE9AA advises that he received official permission to be active from St Paul Island between 25 June and 15 July, although the total time of operation will likely be only nine or ten days.

The callsign will be CY9AA as on the previous occasion in 1997.

Anticipated activity will be from 160 to 6 m, on SSB and CW on the usual DX frequencies; but the 6 m band will receive priority. Mike is a college student with limited resources and he is looking for operators, donations and sponsors. He can be reached at either [ve9aa@hotmail.com](mailto:ve9aa@hotmail.com) or [ve9aa@nhnet.nb.ca](mailto:ve9aa@nhnet.nb.ca)

### **Future DX Activity**

\* **Senegal.** Didier F5OGL is now active from Senegal with the call sign 6W1RE. QSL via: DAT, PO Box 3024, Dakar, Senegal, Africa.

\* **Beijing.** A group of Chinese amateurs will be active as BI3H from Shijiuто Island

on 25-26 July during the IOTA Contest. QSL via W3HC (ex-W3HCW).

\* **Madagascar.** Ake SM7CIP has been active since February as 5R8FU. He is likely to stay there for a long time. QSL via SM0DJZ, Jan Hallenberg, Siriusgatan 106, SE-195, 55 Mersta, Sweden or via the Swedish QSL Bureau.

\* **Lichtenstein - HB0.** Eight members of the Eindhoven Student Radio Amateur Club will activate HB0/PI4TUE from a mountain restaurant in Lichtenstein, 2,010 metres above sea level. All modes on all bands.

\* **Iceland - TS.** Sigi DL7DF, Tom DL7BO, Ben DL7BY, Frank DL7UFR, and two YLs will be active from 15 to 21 June on low bands CW, but SSB and RTTY is also possible. QSL via DL7DF.

\* **Cambodia - XUF2.** Harv XUF2 (this is a valid callsign) has been reported operating RTTY and SSB.

\* **Togo - SV.** Marc F5CPU is active with the callsign 5V7BM. His activity will last until the end of 1999. No other details were given.

\* **Navassa - KPI.** Dan K8RP announced a DXpedition to Navassa Island and in the near future. Specific dates will be advised at the Dayton Hamvention. A special event type of callsign N1V will be used by the group.

\* **South Shetland Islands.** Stan SP3BGD is now active as HF0POL from Henry Arctowski Station on King George Island. QSL via SP3SUN.

\* **Pitcairn Island.** Expect to hear the new VP6 prefix from Pitcairn Island beginning 1 May. Terry VP6TY was heard operating the club station VP6PAC on 2 May on 40 m SSB. QSL to PO Box 73, Pitcairn Island via New Zealand.

\* **Tromelin Island.** Henry FR5ZQ was heard again as FRSZQ/T. The length of his stay is unknown. QSL via his home call and address: Henri Namtameco, Rampe De Saint Francois, 5052 Tour La Chaumiere, F-97400, Saint Denis, Reunion, France.

\* **Ascension Island.** There is now a new activity from the refurbished club premises of the island's ARC. Paul ZD8T and ZD8V were heard lately working from the islands.

\* **Tanzania.** Paul SH3PW will be active from this east African country for at least four years. He was heard on skeds between 1900-2000 UTC on Saturdays and Sundays on 21245 kHz and will QSO other stations after. QSL via N2CD.

\* **Algeria.** Mark ON4WW (ex-9X4WW) has arrived in Algeria for a six month stay. He hopes to be on the air as 7X0WW, CW on all bands. QSL via ON5NT.

\* **Iran.** Ali EP2MKO was heard on 20 metres (14,011 kHz) between 2000-2100 UTC and on 15 metres (21,004 kHz) after 2130 UTC. QSL via UA6HCW.



Ed Hartz ZL7IR operating from a hill above Waitangi. Petrie Bay is in the distance.

## Interesting QSOs and QSL Information

\* **SB4LP** - Andre - 28550 - SSB - 0734 - April. QSL via F6FNU Antoine Baldeck, PO Box 14, F-19291, Arpajon Cedex, France.

\* **SB4ADA** - Ivo - 28550 - SSB - 0735 - April. QSL via Ivo Bezer, PO Box 1642, Nicosia, Cyprus.

\* **ZS6AAB** - Brian - 28448 - SSB - 0744 - April. QSL via Brian Edwards, PO Box 11106, Selcourt 1567, South Africa.

\* **C6AFV** - Delano - 21295 - SSB - 0125 - April. QSL via Delano Taylor, Box F-3563, Freeport, Bahamas.

\* **KP4DKE** - Peter - 21291 - SSB - 0201 - April. QSL via Pedro S Layben, 10 Esteves Ave, Ultuado, Puerto Rico.

\* **TF3DX** - Villi - 14 MHz - CW - 1955 - Mar. QSL via Vilhjalmur Thor Kjartansson, Silungakvisli 10, IS-110, Reykjavik, Iceland.

\* **SH1/G01XC** - Jim - 14 MHz - SSB - 1455 - Mar. QSL via G01XC, JH Martin, 27 Firs Crescent, Harrogate, North Yorks, HG2 9HF, UK.

\* **SV9ANH** - Vagelis - 14240 - SSB - 0622 - Mar. QSL via the Bureau.

\* **ZD7WRG** - Jonny - 14210 - SSB - 0746 - Mar. QSL via WA2JUN, Anthony L D'Ecole, 187 Long Hill Road, Oakland, NJ-07436, USA.

\* **UA1JJ/ANT** - Slaval - 14011 - CW - 1120 - Apr. QSL via Box 496, St Petersburg, 196244, Russia.

\* **5RSFK** - Ray - 7018 - CW - 2120 - Apr. QSL via NY3N, Raymond B Shankweiler Sr, RFD 2, Box 364-AA, Seaford, DE-19973, USA.

\* **FG5FC** - John - 14226 - SSB - 1311 - Apr. QSL via F6DZU, Hubert Loubere, 289 Ave de Caupos, Biscarrosse, France.

## From Here and There and Everywhere

\* Jack VK2GJH, who was active in the Pacific as T30JH, C21JH and V63JH, etc, has lately been getting many QSL cards, mostly from overseas, for the Nauruan station C21NI. Jack is not the QSL manager for this station. C21NI used to be the callsign of the Nauruan Amateur Radio Club which is now defunct. Jack operated from C21NI until about November 1991. He is happy to QSL the contacts made before that date, and also the QSOs made with his personal callsign C21JH since that date. However, he is unable to QSL C21NI contacts after November 1991. He will return the cards if reply postage is included. Jack is not a member of the Bureau and all QSLs should be sent direct to Jack D Haden, PO Box 299, Ryde, NSW 2112, Australia.

\* The new DXCC (DX Century Club) branch manager is Bill Moore NC1L, effective from 20 April 1998.

\* **Sweden.** The special call 7S5BE will be active on the CW and SSB section of the bands until the end of the year. QSL via the Bureau.

\* There were 48 International Marconi Day stations active on 25 April celebrating the birthday of Guglielmo Marconi.

\* **Mongolia.** The Italian DXpedition started on 7 April using the call JT1Y. Due to technical and other problems the three station activity had to be reduced to two stations. One was used mainly on the WARC bands and the second mainly on RTTY and the low bands. The team left Mongolia on 12 April. QSL via 10SNY, Nicola Sanna, Str Guatarella 8/M, 06132, S Sisto-PG, Italy.

\* **Kerry VK4MZ** was active as VK4MZ/ BY1QH from Beijing. QSL to home call, direct only.

\* **Bangladesh. S21K** is a newly licensed amateur and is resident in Bhola.

\* The legality of the activity of Rene FT5X/FR5HR from Kerguelen and other parts of the French sub-Antarctic archipelago is in doubt. It seems that entry to these islands is restricted and one has to first have the French Antarctic Authorities (TAAF) permission for landing on the islands.

Once this is given, the French will issue the "proper" callsign, eg FT5XN, etc. It seems activity using the call FT5X/FR5HR is not correct.

\* **Poland.** Special event station SN0JG will be active from Gdansk until 30 June. QSL via SP2BKI.

\* **Cambodia.** QSLs for XUX0 should be sent to 7L1MFS, Yoh Yoshida, Shinko Bldg, 4-4-1, Arakawa, 116-0002, Japan.

\* **Switzerland.** The Locarno Radio Club has activated the special call HB5RL to celebrate 200 years of independence for the Canton of Ticino. Special QSL via the Bureau.

\* **H40AA - Temotu Island.** The international amateur team organised by the South China Sea DX team closed operations at around 1800 UTC on 12 April. It was reported that they made 65,000 QSOs.

\* New QSL Bureau for **Guam.** It was reported that the new KH2 QSL Bureau is run by the Mariana Island DX Association, Box 445, Agana, Guam, 96932, USA.

\* **Spain.** A number of stations were on the air with the EG prefix and with suffixes UIT, IUT, ITD and TID celebrating International Communication Day on 17 May.

\* **Singapore - 9V.** Jaya 9V1VGS advises that all amateurs in Singapore will be permitted to use the prefix 9V8 from 18 July until 15 November 1998.

\* **Vatican.** A new station was heard from the Pontificia Universita Lateranense, Vatican City, using the call HV5PUL.

\* **Cambodia.** If you worked the stations XU3MTM or XU7MTM they were visitors from Korea's Telecom ARC. QSL via HL2AQN.

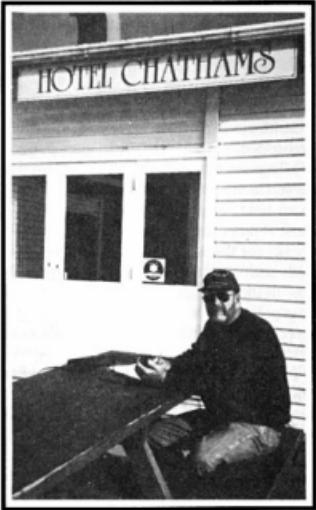
\* **The Chinese Radio Sport Association (CRSA)** recently authorised the use of the BI prefix for use by IOTA expeditions.

\* A number of Special Event stations were active in April and May. IR0N was celebrating the anniversary of the establishment of Rome. EO5JM was celebrating the 53rd Anniversary of the victory of the Great Patriotic War (WWII); QSL via UU2JQ. TP4CE was celebrating Europe Day on 5 May for the Council of Europe ARC. QSL via F6FQK.

\* The H40AA group launched a special edition QSL card for which they are asking a \$US25.00 donation to benefit the Temotu Development Fund. This is a voluntary organisation headed by New Zealand's Dr Wilson, who is on the island group, co-ordinating a variety of projects to benefit the local population which is constantly afflicted with high malaria fever.

\* During the World Football Cup in France (soccer to us Australians) which takes place from 10 June to 12 July, there will be ten special event stations from ten different cities in France, all having the prefix TM, the suffix CMP, and a district number which will run from 1 to 0.

\* **Pigeon Island.** Jim VK9NS, operating from Pigeon Island in the Temotu Group, logged 15,760 contacts during a 14 day activity. He used the callsign H40AB. QSL.



Ed Hartz ZL7IR operating from Hotel Chathams.



# "VK3LZ calling!"

More sound information from your friends at Icom.

## GOOD THINGS COME IN SMALL PACKAGES!

The IC-Q7A, the pocket sized powerhouse has arrived and at just 8.6cm high it will fit into your shirt pocket. It's a QRP dual band transceiver, 2m/70 cm, with wide band receive (30MHz - 1300MHz), AM, FM, & WFM, and 200 memory channels. It offers simple operation with an easy band switching system... automatic squelch for consistent signal strength... moisture resistant construction... all powered by 2 standard AA alkaline batteries. The IC-Q7A delivers crystal clear audio even in noisy environments. Check it out soon, it's an amazing little unit.

## AMATEUR INFO ON THE WEB.

You'll find the Amateur Transceiver Radio Centre at 141 Gilba Rd. Girraween, Sydney, but you'll also find them on the web on [www.australia.net.au](http://www.australia.net.au). ATRC report plenty of hits on their website from interested radio enthusiasts. If you're an Internet browser be sure to visit their site soon for information and bargains on great Icom gear.

"...73"

FreeCall 1800 338 915

290-294 Albert Street  
Brunswick, Victoria 3056  
Tel : (03) 9387 0666  
Fax : (03) 9387 0022

ACN 006 092 575

via Jim B Smith H40AB, PO Box 90, Norfolk Island 2899.

## QSLs Received

5N0T (4 m - F2YT); V8EA (6 w - JH7FQK, Ichio One Ujiie, 162 Shionosawa, Kohata, Towa, Adachii, Fukushima 964-02 Japan); VK9WM (11 w - VK4FW); ZL7IR (6 w - Ed Hartz K8VIR, PO Box 480, Green Valley, AZ 85622, USA); FT5XN (3 m - F6PEN); 3XA8DX (3 m - DJ9ZB).

## Thank You

I would like to thank my friends who support my endeavour to supply you, the reader, with up-to-date information in this DX world. Special thanks are due to: VK2EFY, VK2EJM, VK2GJH, VK2KFU, VK2TJF, VK2XH, VK4LV, VK5WO, VK6LC, VK6NE, DXCC News Release, OHIO/PENN DX Bulletin, QRZ DX, The 425 DX News, The DX Newsletter and The DX News Magazine.

# Education Notes

**Brenda M Edmonds VK3KT**

Federal Education Co-ordinator  
PO Box 448, Blackburn VIC 3130

For some time now most of us have accepted that amateur radio as a hobby is in a decline. The intake of new licensees is not keeping up with the losses from various causes. The average age of examination candidates is rising, as is that of the amateur population as a whole. We are attracting very few young candidates. In addition, the WIA has the problem that its membership is an ever-decreasing percentage of the total amateur population.

Amateurs with whom I have discussed recruitment agree that we need to consider both aspects. We need to attract more persons of all ages into amateur radio, and we need to persuade more of them to join the WIA. As in all fields of politics, the lobbies with the most voices carry the most weight. The WIA speaks for the whole amateur population at both national and international levels, and has, in the past, gained increased privileges or negotiated more favourable conditions for all operators. However, it is supported by less than half the active amateurs.

Part of the problem is that so many of us are living in the past. We still see ourselves as the pioneers, builders and experimenters who were the norm a couple of generations ago. But today's generation of amateurs has other goals, interests and abilities, and we have little way of knowing the expectations of the newcomers. More importantly, we cannot sell amateur radio to this generation using the ideals of fifty years ago.

We need a profile of current new licensees in order to tailor our approaches to the interests of the groups we are trying to attract. What aspect(s) of amateur radio are encouraging young people to enter? What aspects appeal to the middle-aged entrants? What is it that a new recruit wants or expects to be able to do when licensed? How can we catch the attention of the section of the populace which has never heard of amateur radio?

The same type of questions apply to WIA membership. What is it that persuades an amateur to become a member of the WIA? What does a member expect to receive for the membership payment? What is he/she prepared to pay for what is received? Are we still emphasising the provision of services which are no longer relevant?

Once, years ago, I compared WIA membership to a Trade Union membership. This may no longer be politically correct, but to a large extent it still applies. In some countries, membership of the national Society is compulsory for a licence holder. Think how low our WIA subscriptions could be if all Australian amateurs were WIA members! And think how much stronger the WIA's voice would be in the negotiations!

## RealNetworks Denies Its Audio Streams Can Be Recorded

RealNetworks has come under fire from the British Phonographic Industry, which has issued a warning to broadcasters that music played on the Internet using RealAudio software could be recorded using a widely available software called Audio Rack.

Meanwhile, Virgin FM's webmaster says RealAudio streams could be converted into .wav files but only at the audio quality set by the Web server "not the equivalent of burning a CD."

*[Courtesy TeleText page 998/TechWeb May 98 and Qnews]*

# Spotlight on SWLing

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## VOA Change of Format

By now you will have heard about the change of format to the VOA from Washington. As from 0100 UTC on 28 May, the VOA English service commenced a rolling 24 hours a day, seven days a week, all-news format. This means that they have dropped some of their popular music programs such as "Music USA", "Now Music" and the still popular "Jazz USA" tapes with Willis Conover, recorded several decades ago. These music programs will continue, however, on their satellite feed to affiliated stations that relay VOA programs.

As all-news format has been waiting to happen on short-wave and VOA, are first to institute a round-the-clock seven day all-news format. Breaking news stories can be also inserted at any point. This means that some regular programs will be shortened and incorporated into blocks.

"Communications World" shrinks from 29 minutes to nine minutes in the second hour of the Saturday output. However, there will be four separate groups of CW, each lasting nine minutes, aired roughly every six hours. To hear the full program, you will have to catch the later releases. But, this won't be possible as some won't be aired over short-wave at all; the VOA at present does not broadcast in English for the full 24 hours. "Communications World" will be aired at 36 minutes past the hour every odd hour, that is at 0136, 0336, 0536, 0736, 0936, 1136, 1336, 1536, 1736, 1936, 2136 and 2336 UTC Saturdays. Now it is easier to hear, even though it will be segmented, compared with the four releases previously available.

This change of format only applies to English language programming although specific regional programming, such as "Dateline Africa", will continue. Also, programs in "Special English" are to be separated entirely from this format, and heard on dedicated channels. I anticipate that this all-news format could easily be slotted over

other re-broadcasting outlets which will be able to insert it into regular programming.

## Power Line Interference

My February column referred to the increasing phenomenon of power line radiation. Rodney Champness VK3UG of Benalla, Victoria wrote to inform me that there was an article published in the June 1987 edition of this magazine, which he wrote in co-operation with Vic Pleuger. Its title is "Power Line Interference - A Department of Communications Viewpoint".

It was written in 1986 and naturally there have been some changes since then, with more high-powered TV stations. Yet, if interference persists, as it often will, the average citizen is likely to be bewildered by the complexities involved and probably back off. Rodney also suspects that the levels of power line interference have risen.

Were you aware that power line interference (noise) is a broadband signal and is radiated and reflected off the ionosphere, just like other radio signals? I was under the impression that AC line noise was only present over nearby power lines, yet AC line noise is heard well away from them and the only way this can happen is by their reflection from the ionosphere.

Tracking down the culprits is a superhuman task and within tight budgetary restraints it will often persist longer than it should.

## Radio Prague

Also last month, I reported that I had not heard Radio Prague for some time. Vic VK4AXM in Beenleigh, QLD sent me a copy of their present schedule. He said that Prague's transmitters were always located in the Czech part of the country and claimed that the Slovaks developed their own transmitter site.

My information is that Prague was using Slovak sites before and after the two went their separate ways. The present 9440 kHz signal from Bratislava is still quite strong here.

Vic says that Radio Prague can be heard very well at his location. The best time to hear it is between 2130 to 2157 on 11600 kHz. The schedule also says that between 0700 and 0730 it is on 7345 and 9505 kHz which may be audible here. I discount the release between 0900 and 0930 as I don't think the higher frequencies of 17485 and 21745 kHz are propagating in mid-winter, nor are they beamed in this direction. The transmitters are at Litomysl and are only 100 kW, compared to the 250 kW Radio Slovakia International has at its disposal.

Vic also says that there have been no funding cuts, although other delivery methods were considered. If you want to get the latest, both Radio Prague and Radio Slovakia

International have Web sites. Radio Prague is at <http://www.radio.cz/> and Radio Slovakia is at <http://www.slovakradio.sk/rsi.html>.

## QSL Cards

Some SWLs and DXers enjoy receiving and sending out QSL cards to stations, mostly amateur, they hear. Many become frustrated at the return rate. Hans Kiesinger L40370 of Maroochydore, QLD thinks it has a lot to do with where you are located.

Hans has been active in the hobby in Switzerland, Thailand and now in Australia. When he was in Thailand the return rate was 60%, whilst in Switzerland the response was only 28.5%. He says it is too early to determine what the response is here in VK.

When I was an SWL, only 20% of QSLs would be acknowledged. When I received my amateur call, VK7 was still considered a DX rarity and the response was pretty good, although low domestically. Now that there are more VK7s, their QSL cards are less rare.

## Relaying Sites

Last month I mentioned that the Juelich transmitting site was relaying several international stations besides Deutsche Welle, the German External service. I was astounded to learn that 40 separate organisations now utilise the site.

Senntech, the South African transmission service, has also entered the scene and has been relaying African and international stations such as RFI, Radio Netherlands, the BBC, and the Irish National Radio Trans World Radio, also a clandestine Nigerian opposition station which does not appear on any of their schedules.

Twelve months ago the BBC External services privatised their world-wide senders and the successful tenderer was Merlin Communications. Now they have commenced a weekly program in their own right, by relaying several British commercial stations over short-wave. The transmissions are on Wednesdays/Thursdays from 1800 UTC to 0200 UTC. A variety of channels are used from several sites.

If you hear Radio Caroline, or Media Zoo, you are not hearing a pirate station, but Merlin. These weekly transmissions are still only a test to gauge possible interest from other potential users.

## Midwinter Propagation

Don't forget the midwinter phenomenon at around 0200 UTC when European signals propagate over the South Polar regions, particularly on the 49 and 41 metre allocations. Signals have a very fluttery characteristic for a while until the propagation moves further away from the Polar region.

# VHF/UHF

## An Expanding World

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All times are UTC

distances could be extended, perhaps considerably (see the article in March 1996 *QST*, pages 41-46). This speculation has recently been given a huge boost by a report from Shel Remington NI6E (BK29) on Hawaii.

Shel has been monitoring the FM broadcast band for several years for signs of stations from the mainland. On 13 February, just after 0420, he began hearing a Spanish language station on 89.5 MHz, which he later concluded must be XHME from Jalisco, Mexico! Within an hour, he found XHPVA (90.3 MHz) also from Jalisco and XHMZO (92.9 MHz) from Manzanillo. These are Pacific coast cities about 5,200 to 5,300 km from Hawaii.

They are surely among the longest reports of tropospheric ducting anywhere in the world, and the implications of this report are obvious. Probably the next step is to encourage some dedicated VHF operators along the Mexican coast to take advantage of future occurrences of such ducting, as this is probably not a one-time event. Indeed, Shel had heard another Mexican FM broadcast station over a three-day period in June 1995.

### SMIRK Again Urges the Move to 50.2 MHz

The Six Meter International Radio Klub has re-iterated its strong support for moving the ordinary six metre calling frequency to 50.2 MHz and opening up 50.1 to 50.2 primarily for DX work. Bill Tynan W3XO reported the results of the SMIRK board of directors meeting on 31 January. Also in attendance were well known six metre operators N5TX, K5ZMS, W5OZI, W6JKV, and KC5TX. Bill listed seven reasons in support of the plan, summarised here:

1. A DX window helps everyone, especially low power stations not able to move higher power stations out of the way.

2. A DX window helps DX stations, because they will not suffer strong QRM from stateside and lower-tier Canadian stations working across the continent.

3. Due to the tremendous increase in six metre activity as a result of the large number of new rigs now available, the current 25 kHz wide DX window will be woefully inadequate to support the DX and stateside activity that is certain to be present during this solar cycle.

4. In addition to being too narrow, the current 50.100 to 50.125 MHz DX window is also inadequate because a substantial portion of it suffers QRM in the vicinity from TV sets, computers, and other electronic devices.

5. A calling frequency at 50.2 MHz makes good sense. Most VHFers are accustomed to the two metre calling frequency of 144.2

MHz. Having a similar spot on six metres should help alleviate confusion, especially among newcomers.

6. Local, Es and F2 transcontinental QSOs will be just as viable above 50.2 MHz as below. Weak signal F2 backscatter QSOs may actually be facilitated above 50.2 MHz, as they will suffer less QRM from DX stations and others trying to work DX.

7. Despite what some may contend, most equipment, including antennas, works just as well in the vicinity of 50.2 MHz as around 50.125 MHz.

### Six Metres

John VK4FNQ reports a good opening on 30/3. From 0240 to 0928 he worked V73AT, KH6VP, KH7R, KH7U and VK4AFL (by scatter). At 0928 V73AT went from 5x3 to 5x9. They tried 28.885 MHz at 0950 when signals were 5x9 on six but nil heard. It appeared the signals were scattering up the coast from VK4DO 5x3 and VK4BRG 5x2.

#### 44 Operations

Trevor Benton VK4AFL/ZL1AL/H44AL filed this report. *A brief resume of six metre operations at Honiara on 27-29.3. A total of 17 contacts were made, 3 to JA, 1 to BV and the balance to VR, most signals were S9 except the JAs which were weak. All contacts were made between 1000 and 1200 on 28.3. H44AL was issued without any problems (after arrival) for the sum of A\$4! I intend to renew it prior to expiration 31/12/98 for use in 1999.*

*Equipment comprised of an IC 706, Timewave DSP unit and a 4el Yagi at 6 m. All was "installed" at the Honiara Hotel with no management problems at all. Lack of television at H44 was a decided advantage too! The hotel is located 61 m above sea level with a reasonable take-off in most directions, especially west through north east, though very poor to the south.*

*This is a very good DX location, especially for F2 and it will be interesting to see how the H40 expedition fares, though I think 1999 and beyond will realise the full potential of the area.*

*Ten metres was available on almost a 24 hours world wide basis.*

Mike Farrell VK2FLR said that, just for the record, the 30 March event produced only 49.75 MHz video in Sydney plus one JH0 calling CQ on CW on 110. The only station who appeared to be aware of what was going on was VK2DN. Later this year, things should be different.

Roger VK5NY: *On 5/4 I worked my first JA for the new cycle, JH16VXP 5x5 at 0949. Other JA contacts have taken place from VK5 during the past few weeks. My contact was very brief and at first I could not hear the JA being worked north of me by VK5ZBK about*

### US 78 GHz Mark Set

Emil Pocock W3EP in *QST World Above 50 MHz* for May, in reporting the newest additions to the US record book, also includes the first-ever contacts in North America on the 78 GHz band. Lars Karlson AA6IW and Will Jensby W0EOM made their first attempts last 28 November, according to an account that appeared in the January/February issue of *Feed Point*.

The pair made a two-way contact over a 4.6 km optical path in Stanford, California. Both stations used harmonic multipliers for both transmitting and receiving, a common solution to generating signals at such high frequencies. AA6IW was able to generate about 2 mW this way to an 18 inch reflector antenna, while W0EOM made do with considerably less than 1 mW to a 12 inch dish.

After their initial success, AA6IW and W0EOM made a CW contact at 12.7 km on 11 December. Signals were 5 dB above the noise. In the absence of any other claimants, this becomes the new US distance record on the 4 mm band. Congratulations on a tremendous technical achievement! Will and Lars have plans to improve their stations and attempt to extend the distance. They have a worthy goal, as HB9MIO and DK4GD made a 114 km contact on 75 GHz nearly three years ago.

Other US records in the very high spectrum area are: 120 GHz, 1.1 km; 142 GHz, 3.8 km; 241 GHz, none reported; 474 THz (Red Light), 192.6 km; and 678 THz (Green Light), 248 km.

So now it's over to the VK Microwave operators to increase those distances!

### Extraordinary Pacific Ducting

The reliable eastern Pacific duct has supported contacts on 144 MHz through 5.6 GHz between Hawaii and the western US coast at distances of 3,700 to 4,330 km. There has been good reason to think that these

40 km away. He faded out and turned up here so it was a very selective contact; another JA called at the end of the QSO but could not identify.

*On 6/4 from 0616 I worked a good fill of JAs on 50.150, JA1, 8, 9 in a 25 minute window. Signals up to S9 but most were S2 with QSB. Could hear a JA working a VK4 on 50.120.*

From Steve VK3SIX/KL7SIX: *Use of 50.125 is proving to be a boon to six metre operating from the south of Australia as it helps to side-step the operators with a mind set that 50.110 is the only place to go.*

Today 9/4, commenced about 0450 with the usual RI TV at 559. Around 0600 the typical Asian indicators began to build including two new offsets on TV 49.751.6. Also some light 48.240/250 video was logged at 0700. At 0705 JS2TPM was worked followed by Yoshi JE2DWZ. The JA2IGY beacon was 539 and JR2HCB worked on two-way CW very weak.

The band then shifted to the west with JA6YBR in at 0718 and for at least two hours. At 0800 tones on 47.750/45.950/45.942/45.695 were logged.

At 0800 the VK8RAS beacon from Alice Springs PG66 was in weakly with QSB. At 0830 48.2604 Kota Kinabalu appeared showing the path was shortening into SE Asia. At 0920 a string of JAs were worked including J6UAR, JA6LZG, JH3OWD and surprisingly, JR6GV 5x9 from PL36 Naha Okinawa.

JH4ISQ PM54, JH3IMR, JR2CQS, at 0945 JA3EA at 0947 and running up to 1000 JF2VN, VE1KKV, JA6LPWPM3, JE2UAZ, JA4IFV, JM1LIK, JA4EHF, JH4RCD/1, JA4LKC. Last heard at 1030 VK4ABP beacon Longreach 539 52.345 and VK8RAS PG66 559 50.0475.

Shiro Sakai JH4PHW reports via the JA Cluster that JAs made many contacts during early April. A summary follows:

1/4: 0306-0647: 3D2TN, 9M TV, N7ET/

DU7, 2/4: 0429-0500: FK1TK, V73AT, 3/4:

0713-0854: V73AT, ZL2TPY, VK6IP, VK6WD, VK6RPH/b, BV2PU, N7ET/DU7,

4/4: 0345-1201: VK TV, FK1TK, VK4GPS, VK4KK, VK3SIX, VK8RAS/b, 9M6CT, BV2SR. 5/4: 0325-1310: FK1TK, VK6RPH/b, VK8RAS/b, 9M2CT, 9M6CT, VK3SIX, VK5BC, VK4TL, 9M2NK. 6/4: 0335-1233: VK TV, VK8RAS/b, VK3SIX, VK4WVN, VK4BRG, VK5BC, VK4CRO, VK5NY, YJ8UU, V73AT, VK8PN. 7/4: 0644-1010: VK3DQJ, VK2PB, VK2MZ, VK2BA, VK4JSR, VK6QJ. 8/4: 0520-0535: V73AT, VK4R0, VK8RAS/b; 1235 VK6JQ. 9/4: 0501-0953: VK3CNX, VK3AMK, VK3XQ, VK3SIX, ZL2TPY. 10/4: 0253-1053: FK1TK, ZL2AGI, ZL2KT, N7ET/DU7, YJ8UU, VK6ACY, VK3XQ, VKIRX,

VK3SIX, VK2QF, VK3DUQ, VK5DK, VK6JQ, VK8RAS/b, VK2DN, VK3SIX, VK4GPS, VK6TRG, VK6YU, VK6BAJ, VK6RO, VK6YAG, VK6AOM, VK6JJ, VK6RPH/b, VK6KRC, VK6ZRY, VK4BLK, YJ8UU, BV2PU, 9M2NK, 9M2KT, P29KFS, BV2SR, V73AT, VK3AMK, VK2DN, VK4YK, VK4JSR, VK4JH, VK8VF/b, JR6YAG/b. 11/4: 0454-1050: V73AT-N7ET/DU7, P29KFS, 9M6CT; JI1WMI-9M6CT, V63AO; JA1RJU-V73AT, JA5GJN/4-9M6CT; VK3SIX-JH1DPJ, JH1LJU, JA1ETO, JR2HCB; FK1TK-JIINJC; P29KFS-JP2HEV. Heard: VK8RAS/b, VK4RGG/b, JA7ZMA/b and UA TV.

Rod McNabb VK3DQJ (previously VK3YBC back in the 70s) reports that his QTH is now at Taycroft, on a small farm about 80 km north-west of Melbourne and far enough from the city to avoid the inevitable QRM. Elevation is approximately 600 m asl, a windy location prone to lightning strikes! Also operates on 144 and 432 MHz.

During the equinox up to 14/4, JAs every day usually around 0400, but also from 0600 to 1000. Asian TV as well. On 7/4 a brief opening around 0400 and worked JA91PF at 0414. Later at 0735 JAs again. It was like the openings back in the late 1980s. Wall to wall JAs, with signals well above the S9+ and little or no QSB. Signals finally started to drop just after 0800 and the band remained quiet until 0928, when it was on again! The last station worked was JRIEAX at 1010. Total - 57 JAs, all areas except 7 and 8.

8/4: A brief opening from 0930 to 1017 to JA6/7. Nothing on 9/4 and 10/4 due to work commitments. Small openings since. Rod said he was surprised to hear so much CW on six metres, much of it machine generated. After many years operating he is still entranced with six metres and is looking forward to Cycle 23. Thanks for writing Rod.

**Alaska**

Steve VK3OT/SIX advises that: *As KL7SIX will be active from 21/9 at the equinox until 21/12 at the solstice. Gear will be some power and decent antenna from BP51 with a little help from KL7FZ. Beacon VK3SIX is being taken to KL7 and reprogrammed 20 watts and 4 el Yagi on 50.0535 MHz. Suggest best time to work KL7 will be around early to middle December, maybe earlier. Liaison on 28.885. Also QRV KL9/HL9 from 17/9 to 20/9 and JA from 12/1 to 19/1 1999.*

**Major Sun Flare**

On Sunday, 3 May a phone call from Steve VK3OT alerted me to a CME proton event occurring that afternoon. At 0330 six metres was blanketed with white noise which peaked to S9 with the antenna pointed at the sun.

The rise and fall of the flare strength could be easily observed in the AM mode. The same noise was evident on 144, 432 and 1296 MHz, at diminishing strength as the frequency was raised, but still quite noticeable on 1296. The noise remained until sunset.

On 4/5 an e-mail to the VK-VHF Reflector by Mike ZL3TIC said that at 0400 a major Aurora was in progress with video on 45.240, 250, 260 5/9+, 46.240, 170 5/5, ZL3SIX/b 5/9 via the Aurora path. This is about the strongest Aurora I have heard in a long time. Also major solar noise up to 40 dB over 9. **Trotting Around the Pacific**

By letter, Jack Haden VK2GJH provides information regarding his expeditions around the Pacific.

He plans to operate from Nauru as C21JH for two weeks from late August or early September and will be seeking six metre contacts. He says there may be a side trip to Tarawa where he will possibly spend one week as T30JH.

Equipment will be an IC-736 HF to 50 MHz with 100 watts on all bands. On six he will use a five element Cushcraft antenna. He says:

*If I cannot obtain an additional five element for Nauru (no antenna for six at present secured for Nauru), then the trip will operate in reverse as I will take my five element from Tarawa and carry it as passenger luggage to Nauru.*

*Does anyone wish to donate a five element for Nauru? If one can be secured it can be left with a resident Nauruan resident amateur for use following my departure; I think C21RK has six metres but lacks a decent antenna, maybe C21NJ also has six but I am not sure.*

QSLing will be direct only through Jack's Sydney address (PO Box 299, Ryde, NSW 1680), and must include a SAE and return postage; in the case of VKs it will be a 45c stamp on the envelope.

We can only hope that propagation will permit signals to reach Australia. Distance from Nauru to VK5 is around 4000 km. Many JAs also need C21.

## Two Metres and Above

The following brief message arrived from John VK3KWA too late for last month. He said that on the evening of 3/4 VK5VF/b and VK6RTW/b on two metres were audible in Melbourne for several hours.

On 4/4 late morning Wally VK6WG was heard but not worked. Around 0200 VK5NY was worked on 144, 432 and 1296 MHz. Enhanced conditions disappeared around 0400. Thanks John.

Roger VK5NY sent the following: *On 4/4 at 1551 I worked VK6WG 1296 5x3, 432 5x9, 144 5x9. This started a long line of QSOs both to the west and also to the east.*

I ran a keyer on 1296.400 with five watts to a bay of 4 loop Yagis pointing to Wally VK6WG. We found strong signals on 1296 peaking to S7 and on occasions to S9 over the next 12 hours. A very steady signal with no QSB on 1296 would indicate a stable duct across the 1800 km path. No turbulence or air movement across the ocean for many hours.

At times, 144 and 432 were producing rock crushing signals. My last contact to Wally was at 0137 on 1296 for 5x7 to S9. It appears the peak was happening in this time slot. Following at 0202 I worked John VK3KWA on 1296, the other direction to Melbourne at 600 km with marginal signals of 5x2 5x1.

The Esperance beacon VK6REP on 144.566 was not heard at 0137, although I had copied it to S7 at other times. The swing in diversity between Albany and Esperance beacons was many dBs. Comparing the weather maps of 30-12-94 3 pm and 4-4-98 9.30 am, it can be seen that two slow moving high pressure cells of 1029 and 1030 mb were centred close to the coast, virtually heading over Adelaide, both with very high pressure gradients indicating calm air across the Bight.

Stations worked to the east on the 4/4 - 144 VKs 3AMH 3CAT 3TMP 3TBM 3F1Q 3AXH 3ZQB 3ZL 3KWA; 432 - 3KWA; 1296 - 3KWA. Beacons heard 144 3RTG Melbourne S2 (this a rare one for me), 5RMG near Mount Gambier S9+, 3RGL S5, 7RAE NW Tasmania S2; 432 - 5RMG S7 and 3RMB Ballarat S5 for many hours.

Stations worked on 5/5 (Sunday morning) - VKs 3XPDX 3AFW 3ZLS 3AUU 3EFX 3CAT 3ZL 3DVY 3KLO 3BTM; 432 - 3BTM 4x2 strong QSB; beacons heard - 144 5RMG; 432 7RLE S2. Had to work via repeater 7RAE to work VK7ZMR to get a VK7 in the log. Conditions to the west for the morning - no Albany beacon, Esperance S2 as expected with the high moving east.

No meteor pings on the usual 144.200 morning aircraft skeds from VK1/2/3. I get a buzz when I hear such things as Z!! 2!!VK!!B!!ZAB from the band noise on those skeds some mornings.

David VK5KK reports: *A late opening to Albany occurred on 3/4 when the VK6RTW beacon appeared around 0830. Apparently signals peaked around 1500 with VK5NY working VK6WG on 1296 MHz with good signals. On 4/4 signals held up past mid-day (0230 UTC) on 144 and 432; VK6WG was still 5x8 on 144 and 432 MHz to VK5KK around 0215 with signals still being heard from VK6WG on 1296 MHz, although not as strong as earlier. The beacon was heard through to about 2300 on 5/4, however conditions had slid well south by then.*

*On a separate note. Every now and then you will hear, on 50 and 144 MHz, poor*

*sounding and distorted signals from stations running equipment that has a serious fault or simply isn't properly set up. In one case just recently, a station near Adelaide on 144 MHz could be heard +/- 50 kHz from his operating frequency even though his main signal wasn't strong! From observations it would seem that the driving transmitter was attached with a poorly matched input to an amplifier. This made it almost impossible for several others to work any weak DX stations, due to the splatter from rather long-winded overs!*

*True, it is a fact of life that some VHF transceivers output spectrums don't measure up to the same standards as their HF counterparts, however it is not difficult to*

*operational on 50.005 MHz at a power of 25 watts. Grid square is KF25ux. The antenna is a dipole which favours VK. Also, there is an increasing level of FM activity on 50.450 MHz in South Africa with horizontal directional antennas. Mike hopes that this activity will increase the number of potential operators with horizontal antenna for long haul contacts despite the mode being FM.*

*Finally, the other six metre operational beacon in South Africa is ZS6DN on 50.050; however, the Yagi antenna for this beacon is pointing north, for this is the direction where most contacts are made from South Africa to the Mediterranean area.*

## New Contest

Rod VK2TWR has suggested the following: *I would appreciate your feedback on the idea of a contest to be held early to mid November for two metres and above, to be called the Ian Berwick Memorial VHF Contest, in memory of Ian's enormous contribution to amateur radio.*

*The contest would be designed to promote portable participation in particular and to take advantage of the very good conditions generally at that time of year. It is envisaged that the rules would be similar to those used in the 24 hour VHF Field Day in January.*

*Any comments or suggestions would be gratefully received. We have time to organise the first contest for this November if we have enough enthusiastic people behind the idea. Looking forward to hearing back from you all.*

In regard to the above, I sent e-mails to about 20 operators in VK5 and VK6. Several have responded, generally supportive of the idea, but not all favour the naming. No disrespect intended for the late Ian Berwick, but with the thought that there are quite a few VHF/UHF operators who have contributed significantly to that particular amateur radio field. It seems a more neutral name may be better accepted, perhaps simply The November VHF/UHF Field Day Contest or similar. Over to you for comment.

## Beacons

A message on 30/3 from Rod VK4KZR said VK4RTT (Bunyans Mountains) on 144.4392 MHz zero beat is now on air. It is A1 keyed. The Brisbane VHF Group is currently working on the hardware for the 432 and 1296 MHz beacons. Also a decision has yet to be made on a permanent home for the beacons.

## South Africa

A letter from Bill Hosie VK6ACY advises: *I recently travelled again to South Africa where I now spend about half the year. When there my callsign is ZSSACY.*

*As you are aware, I have an interest in VHF, 50 and 144 MHz in particular, with emphasis on exploring the Indian Ocean path between Western Australia and South Eastern Africa. ZS5 and FR5. I conveyed to Mike Bosch ZS2FM, VHF editor of Radio ZS, updated information relating to beacons and other activities in Western Australia.*

*Mike asked me to advise the Australian fraternity that the beacon ZS2SIX is now*

## Closure

The point has arrived where I must stop. I did have a number of other items for inclusion this month but there has already been considerable pruning of information to arrive at the present state.

Closing with two thoughts for the month:

1. It is not the employer who pays wages - he only handles the money. It is the product that pays wages; and

2. The chief deduction most people make from their income tax is that government costs too darned much.

*73 from The Voice by the Lake.*

# AMSAT Australia

Bill Magnusson VK3JT  
RMB1627, Milawa VIC 3678  
E-mail: [vk3jt@amsat.org](mailto:vk3jt@amsat.org)

## Yoshi Takayasu Visit

**Y**oshi JA6XKQ works for NEC as a Satellite Systems Engineer. He has been with NEC for 22 years and was in Melbourne recently working on his latest project, a mobile phone system based on satellites. Graham VK5AGR alerted me to Yoshi's wish to meet some of the local AMSAT users during his stay in Melbourne. We arranged for him to meet some of the Melbourne gang and in April he made the trip to Milawa to stay with me for a weekend.

I don't think Yoshi had ever seen a WiSP station operating, but it took him only a few minutes to work it all out before he was operating the station and sending messages to Graham and others like an old hand.

Yoshi has just returned from Orlando where he installed the SCOPE camera in P3D. He was the leader of the five member SCOPE development team. He managed to keep the whole team together for nine years as the project developed. No mean feat! He was also involved in the design and construction of the JAS satellites.

One of my closest amateur friends, Richard Robbins VK3ARR/W8VNE, also works at NEC in Melbourne. Richard had entertained Yoshi at his home at Rosebud a few weeks earlier, and Yoshi had also been to see Doug McArthur of moonbounce fame.

Yoshi did a moonbounce project for his university final year. He was experimenting with the earliest GaAsFETs when they were state of the art and mere mortals like us had never heard of them. He was given a GaAsFET for his project by the guy who invented them!

We didn't play ham radio all the time. We spent some time touring the district. We talked about Sputnik and I told him I had an original recording of the first Sputnik. He was very interested and he recorded one minute of it as a WAV file on his laptop computer. The recording, along with details of how it was made over 40 years ago, are now on the JAMSAT web site.

Yoshi is also interested in astronomy. We spent some time outside in the yard looking at the night sky. He wanted to see some of the southern sky objects, in particular the 'coal-sack' and the 'Clouds of Magellan'.

Yoshi's interest in astronomy spilled over into the SCOPE project. Its original design specs called for it to be capable of planetary photography. The resolution of the narrow angle system is sufficient to enable planetary photographs to be taken but this aspect had to be abandoned when it was decided to go for three axis stabilisation and earth pointing rather than spin stabilisation. Three axis stabilisation makes pointing too difficult to contemplate planetary photography. The wide angle system should give an 'astronaut's view' of Earth and the narrow angle system should rival the NOAA's for detailed photographs.

Yoshi will be back at NEC, Melbourne in June or July for maybe three months. He hopes to get over to VK5 on that occasion and meet up with the local AMSAT gang. I'm sure they will enjoy his company as much as I did.

## Last Load of Rocket Fuel for MIR

A freighter rocket delivered the final load of rocket fuel to MIR last month. This will be used during the planned de-orbiting procedure to be carried out later this year. Being a large structure, much of which will survive re-entry, MIR is expected to be guided to splash down somewhere in the Pacific ocean. This will end an era in amateur radio operations in space. Many will remember the wonderful QSOs with the Russian crew members over the years. We can only hope that the International Space Station will enable this tradition to be continued.

## Last Shuttle Flight to MIR, Andy Thomas Comes Home

By the time you read this column, Andy will be counting off the last few days before the final Shuttle flight to MIR is due to pick him up and return him to Earth.

His presence on MIR has been quite refreshing. It has meant a return to the 'good-old-days' when the operator had the time and inclination to chat for a while. How fortunate we were that the last visiting scientist to MIR was an Australian. Andy is to be congratulated on his patience and good operating practice.

## Exciting New Amateur Radio Satellite Launches

At the time of writing, TECHSAT-2 from Israel Amateur Radio Society and TMSat-1 from University of Surrey and the Thailand University Team are both being prepared for

## AMSAT National Co-ordinator

Graham Ratcliff VK5AGR  
E-mail: [vk5agr@amsat.org](mailto:vk5agr@amsat.org)

## AMSAT Australia Net

Control station - VK5AGR

Bulletin normally commences at 1000 UTC, or 0900 UTC on Sunday evening depending on daylight saving and propagation. Check-ins commence 15 minutes prior to the bulletin.

Frequencies (again depending on propagation conditions):

Primary - 7.068 MHz

(usually during summer).

Secondary - 3.685 MHz

(usually during winter).

Frequencies +/- QRM.

## AMSAT Australia Newsletter and Software Service

The newsletter is published monthly by Graham VK5AGR. Subscription is \$30 for Australia, \$35 for New Zealand, and \$40 for other countries by AIR MAIL. It is payable to AMSAT Australia addressed as follows:

AMSAT Australia

GPO Box 2141

Adelaide SA 5001

## Keplerian Elements

Current keps are available from the Internet by accessing the AMSAT FTP site, <ftp://amsat.org> and following the sub-directories to "KEPS".

launch. If all goes well they should be in orbit and undergoing commissioning as you read this column.

A second TMsat is due for launch later this year. All these satellites carry amateur radio packages running 9600 baud FSK data similar to UO-22, KO-23 and KO-25.

SEDSAT-1 from the University of Alabama is slated for launch in October. It will carry a mode L digital transponder and a mode A analogue transponder. The mode A capability will be eagerly awaited by many considering the current situation regarding mode A.

## New NOAA Weather Satellite

NOAA-K, or NOAA-15 as it will become known, is due for launch as I write this column. It is the first of a new generation of weather satellites from NOAA (National Oceanic and Atmospheric Administration).

All weather satellite buffs will be looking forward to this new Earth imaging satellite. Hopefully, it will encounter no glitches and will be released into the public domain smoothly.

The NOAA series of weather satellites has afforded many amateurs the opportunity to hone their skills in the popular area of remote imaging which is becoming an almost

standard part of new amateur radio satellites these days.

## **JAVA Satellite Software Released**

John Melton, N6LYT/G0ORX, has announced the preliminary release of his Java Satellite Ground Station Software at <http://www.qsl.net/n6lyt>. This software implements

a fully automated Digital Store and Forward Satellite Ground Station.

It includes: KISS Protocols, AX25 Protocols, PACSAT Broadcast and File Transfer Protocols, Message Composer, Message Viewer, Orbit Propagation, Satellite Scheduling, Radio Control, and Rotor Control. The software has been successfully run on Windows/95, Linux, and Solaris.

John is interested in receiving email messages from anyone who decides to download and run his software. He may be reached at [n6lyt@qsl.net](mailto:n6lyt@qsl.net).

## **Next Month**

Six monthly update of current amateur radio satellites.

ar

# **Silent Keys**

**Due to space demands,  
obituaries should be no  
longer than 200 words**

The WIA regrets to announce the recent passing of:

L J (Len) BRINES VK2LEN.

### **Colin Wymess Johnson VK2YJ**

Colin Johnson VK2YJ sadly passed away on 10 October 1997, at the age of 79 years.

He passed his AOCP on 15 February 1938 and was given the callsign VK2AJC. This was changed to VK2YJ the following year. Colin was very interested in two metres from his excellent location. He built several HF beam antennas but they did not last long as the high winds took their toll. He was still active up until his death.

In the early war years he was involved in small ships patrolling the Newcastle defences. He built and raced speed boats with Royal Newcastle Motor Yacht Club at Toronto, where he was a member.

His other interests included stamp collecting and model trains, as well as weight-lifting.

Colin was the fourth employee at Edmunds Moi Newcastle Pty Ltd where he was a bookkeeper, and later became the general manager.

In his forties he married Elizabeth, the great love of his life, and built their home in Hickson Street, Merewether. Adrian and Danielle were born and life was sweet.

In 1975 he suffered heart problems and underwent heart surgery. In 1980 Elizabeth died, a great loss which he found hard to

accept. Nevertheless, he made his children the focus of his life, and greatly enjoyed his grandchildren, Ellie, Alex, Christopher and Katie.

He will be greatly missed by his children and grandchildren.

His memorial service took place at St Augustine's, Merewether on 16 October 1997. Norm Stanley VK2BNS

### **John Gray VK2BGJ**

He died occurred in April 1997 of John Gray VK2BGJ a well known amateur operator and experimenter in the Hunter area.

John was an amateur for over thirty years and was well liked and respected in both the amateur and professional electronic world.

John worked in the electronics industry and had been a Technical College lecturer before commencing his own very successful mobile radio enterprise. He had a quiet and friendly nature and was a ready source of help and information to other amateurs.

John is survived by wife Joan and two sons. Tony O'Brien VK2BOA Ian Fyfe VK2ZIF

### **Len Brines VK2LEN AFARN No 69**

Len VK2LEN passed away on 13 April 1998.

Len served with the RAAF during World War II as a Radar Mechanic with 10 Squadron (Sunderlands) and then served the amateur radio fraternity as Net Controller of the Central Coast Amateur Radio Club and the Air Forces Amateur Radio Net. Len was an officer of the AFAR Net when he acted as Awards Manager.

He had a good radio voice, was blessed with a good memory for call signs and names and was always the gentleman.

I always looked forward to meeting with Len at the Gosford (Wyong) Hamfest. Bob VK4ACL, AFARN No 96

### **Werner Otto Haack VK3WOH**

It is with deep regret that we record the passing of Werner after being ill for several years.

Born in Berlin in June 1924, he was trained as a blacksmith. He continued to build on and use these skills during the rest of his life in the metal industry.

Werner was a radio operator in the German Navy where he first became involved in radio communications.

He arrived in Melbourne in January 1954 and worked for many years with "Cyclone" in Melbourne and Launceston.

On retiring to Riddells Creek he renewed his interest in radio communications as a CBer, and finally by obtaining his full amateur call.

He made many friends through the hobby. This interest resulted in Werner and Ilse travelling to a number of local and interstate radio conventions. One of the early members of the Sunbury Amateur Radio Club when it was first formed, he could be relied upon to be involved in Club activities and give encouragement to others. He was frequently heard on the weekly net before his health started to decline.

Werner will be sadly missed by his many friends across the bands.

Ian Morris VK3DVO

### **Ivan James Searle VK5NSI**

It is with sadness and regret that we report the passing of Ivan Searle VK5NSI on 27 October 1997 at age 63 after a relatively short illness.

Ivan received his licence in 1979 and was a keen operator in the 10 and 80 metre bands. In 1981 he took part in the VK/ZL Oceania DX Contest and gained first place in the VK 28 MHz eight hour section with a score of 66,066 points. In 1982 Ivan participated in the 10 / 10 International Contest and placed first in Australia.

During the 1980s Ivan collected 179 certificates for his World Wide contacts on the 10 / 10 net. In addition he received 91 awards and certificates from Australian and overseas clubs.

In 1980 Ivan and Jack Thomas VK3NTR, both being "Railway" men, formed the Railways Charter Net and produced certificates for issue to Railways Charter members worked on the 80 metre band. Ivan's devoted wife Audrey acted as Secretary.

keeping records of contacts and the financial side of the net.

During the life of the net, which closed in 1989, a donation of \$300 was made to the National Heart Foundation and, at the closure of the net, \$292 was donated to the Anti Cancer Fund. There were 64 Railway Charter members in the group.

Being a keen member of The Lower Murray Amateur Radio Club, and with his interest in Awards, Ivan introduced and managed the "Bunyip" Award on behalf of the Club. He also acted as Controller for the Club's Monday night net for some years.

Another of Ivan's interests was the JOTA weekend each year when he made his station available to the Tailem Bend Guides at his home, or assisted with the Club station at Murray Bridge.

Ivan is sadly missed by his wife Audrey and family, and his many friends and members of the Lower Murray Amateur Radio Club.

He will be remembered for his contributions to the hobby of amateur radio. Colin Schick VK5JP

### **Sidney James Smith VK6SJ**

**S**id was born in 1918 and died suddenly at home in West Midland on 28 April 1998.

His radio interest goes back before World War II, but it was not until the early fifties that he took out VK6SJ.

He was a foundation and Life Member of the WA VHF Group and was instrumental in the incorporation of the Group. Many early meetings and post foxhunt functions were hosted by Sid and Clare.

Sid was also involved with the now defunct Radio Society of WA and for a time operated the club call VK6SR from his home.

Another great interest was motor sport; Sid was Secretary of the BSA Motor Cycle Club for many years and used to be quietly pleased to tell tales of his exploits at more than 100 mph on two wheels. In early years he provided communications with others for the Redex Round Australia Car Trials and for the Narrogin Car Club 1000 mile Trial in WA.

On the work front, post WWII he managed the family Bread Manufacturing business and, when that was sold off, joined the PMG Department broadcasting and worked mainly in country postings at 6DL Dalwallinu, 6WA Wagin and at ABSW5 Bunbury.

So much more could be said, but there are some great memories of good times together from nearly 50 years ago. In quietly spoken "Smithy" we have lost one of nature's true gentlemen.

So Long Sid.

Don Graham VK6HK

# **Pounding Brass**

**Stephen P Smith VK2SPS**  
PO Box 361 Mona Vale NSW 2103

### **Sending Morse Examination**

**T**his will vary with examiners; however, most examiners will bend over backwards to help you feel as comfortable as possible before you commence the test.

Make enquiries to see if you can use your own hand key during the examination. Most examiners won't mind this as long as you bring a patch lead along with you (more on this later). Use only the key on which you have been practising. Don't go out and buy that fancy key and expect to use it in the Morse examination without first becoming proficient in its operation, otherwise you will definitely fail.

If the Morse key is being supplied, try to find out whether it's a high mount or a low mount and change your sending style to suit; if not, make do with what you have.

Connect your key to whatever form of audio oscillator is being used, and adjust the volume and tone to a suitable level (at this stage you are given a test passage by your examiner to run over). Once this has been completed, make any last minute changes to your position, if need be.

Depending on the examiner, you might be given a new passage to send, or he might have you repeat the test passage previously sent. This shouldn't worry you because you have

already been through it and should feel a lot more confidence second time around.

Remember to start and finish with the commencing and ending signals. Your examiner will probably tell you these and then if you have passed or failed; if not, you will be notified by mail some time later.

### **Patch Lead**

A patch lead consists of a cord between one and two metres in length. One end consists of a female socket, the other end two crocodile clips. The female end connects to the male plug coming from your Morse key and the other end clips onto terminals on the instructor's audio oscillator. It is quick and simple, and has no messing around with different plug adapters, etc.

### **Automatic Keys**

I suggest you stay away from Semi-Auto keys and Lambic Paddles at this stage of your training, as these are much more difficult to use and require a lot more practice than the basic hand key. Only use them when you have become proficient in sending with the basic hand key.

Happy Morse - see you next month.

ar

**Are you reading  
someone else's  
Amateur Radio?**

**Call**

**03 9528 5962**

**to get your own  
copy every  
month**

### **WIA MORSE PRACTICE TRANSMISSIONS**

|        |   |
|--------|---|
| VK2BWI | Nightly at 2000 local on 3550 kHz                               |
| VK2RCW | Continuous on 3699 kHz and 144.950 MHz<br>5 wpm, 8 wpm, 12 wpm  |
| VK3COD | Nightly (weekdays) at 1030 UTC on 28.340 MHz<br>and 147.425 MHz |
| VK3RCW | Continuous on 145.650 MHz, 5 wpm, 10 wpm                        |
| VK4WIT | Monday at 0930 UTC on 3535 kHz                                  |
| VK4AV  | Thursday at 0930 UTC on 3535 kHz                                |
| VK4WIS | Sunday at 0930 UTC on 3535 kHz                                  |
| VK5AWI | Nightly at 2030 local on 3550 kHz                               |
| VK5VVF | Continuous on 145.650 MHz, 5 wpm to 12 wpm                      |
| VK6RCW | Continuous on 147.375 MHz, 3 wpm to 12 wpm                      |

ar

# Intruder Watch

Gordon Loveday VK4KAL

Federal Intruder Watch Co-ordinator

Freepost No 4, Rubyvale QLD 4702

Tel: 07 4985 4168

Packet: VK4KAL@VK4UN-1

return, or some others, like possums, take up residence!

Voice of America harmonics are still being heard on 14.240 MHz, and Voice of Russia has gone up to 7.105 MHz.

OTHR (Over The Horizon Radar) signals have been noted on a number of bands above 20 metres.

Also, a larger than usual number of RTTY signals have been noted. Please make every endeavour to get the shift and baud rate of any F1B station you hear.

There are still far too many intruders on our bands for our collective comfort.

How many have YOU actually identified and, more importantly, sent details about to me?

You can make use of e-mail facilities, if you have them, to notify direct the station technician of the offending intruder station. Address details are often given during or at the end of a transmission. This has been proved to be an effective way of removing intruders. But please let me have a copy of your e-mail for the records.

ar

From the DARC Monitoring System comes: "Due to the combined efforts of all Regions" two very persistent intruders have vacated 40 metres, namely "Voice of Azerbaijan" on 7.095 MHz and "Voice of Russia" on 7.100 MHz. Thanks for your efforts.

However, for the local scene, do not forget to monitor these frequencies as they may

## Technical Correspondence

All technical correspondence from members will be considered for publication, but should be less than 300 words.

### Recycled Three Pin Plug Covers

If you come across some three pin mains plugs or extension sockets of the type you can remove (not the moulded type), that can no longer be used, don't throw them away.

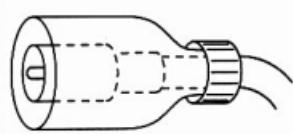
The covers with the clamping nuts make good covers for coax plugs, PL-259 or N types, where exposed to the weather.

As with their normal use, slip the cover over the coax cable before you terminate the plug. When the coax plug is in place, slide the cover up over the plug and tighten the lock nut (see Fig 1).

I have even cut a small disk of aluminium or PCB to fit inside the retaining ring of an extension cord cover, drilled a hole in the middle to take a PL-259 chassis socket, and made an effective free socket on a coax cable to an antenna (see Fig 2). This is a lot less expensive than the difficult-to-obtain bought one. The new clear plug tops are even better!

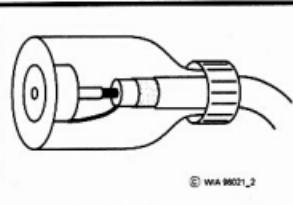
Steve J Mahony VK5AIM  
19 Kentish Road

Elizabeth Downs SA 5113



© WA 98021\_1

Fig 1 - Using a surplus three pin mains plug cover as a coax plug cover.



© WA 98021\_2

Fig 2 - An effective free socket on a coax cable to an antenna.

All of 10 metres is loaded down with CB signals, including American as well as Asian. Many Asian operators are coming up on the 10 MHz band with no callsigns and bad language. Those of you who can access this band should make it your business to harass them. It does work!

7.004 to 7.020 MHz, although busy with CW, is crammed with Asian intruders and others, so the same treatment should apply here. Defend your legal bands!

# WIA Divisions News

## Forward Bias — VK1 Notes

I'm pleased to once again present *Forward Bias*, the recent hiatus being a result of pressures on time, an element of complacency and doubts as to whether anyone actually read these brief missives. Thank you to the few individuals who enquired after the column and encouraged its reappearance!

As I write this we are a scant two weeks away from our May meeting, the first buy and sell/junk night of the year. For my part I shall be endeavouring to show restraint and not re-stock the office/shack with 'More Useful Things'.

Two items are worth noting (and here I take a punt on them not all being sold). The first are some nice little +5V/+12V/-12V power supplies that have been donated to the Division thanks to the efforts of Phil VK1PJ. These units are ex Sun Microsystems equipment and are of that firm's usual high build quality.

The second objects of desire are a number of Philips FM-900s made available thanks to the efforts of Phil VK1ZPL. Many of these units have come on to the market of late and are proving to be excellent units when retuned for operation on 2 metres. Reports suggest they are almost totally immune to pagers (yahoo!) and have very pleasant audio. Our ever resourceful technical group have the process of re-tuning and re-programming of EPROMs down to a fine art, I'm told.

At last night's committee meeting, much discussion ensued about future directions for the Division and our hobby generally. We've a number of proposals that we will be putting to the membership in the coming months; please tell us what you think, good or bad. A number of proposals border on the controversial, and another may be very expensive so it is important that you have your say.

Our thanks go to all who participated in the two recently held WICEN activities. Both were an unqualified success and a fun time was had by all. The organisers of the Canberra Two Day Walk and the Solar Boat Race (part of the Canberra Science Festival) have extended their thanks to WICEN, the

Division, and the many who helped in the field.

In coming events, our next general meeting will be on 22 June and will be a technical presentation by a guest speaker of interest to all. We're still finalising details at this stage so I'll direct you to the broadcast/Web site for details closer to the time.

With the colder weather now upon us, be assured that the heating in the Griffin centre works well, the coffee and tea is hot and the atmosphere warm and convivial. See you at the next meeting!

*Hugh Blemlings VK1YYZ*

## VK2 Notes

### Portfolios Allocated After Election

At the meeting of Councillors of the VK2 Division of the WIA on Friday, 8 May 1998, it was decided that portfolios for the coming 12 months would remain basically unchanged. The major change for 1998/99 is that Michael Corbin VK2YC has been elected President of the Division. Senior Vice-President is Brian Kelly VK2WBK, Junior Vice-President is Owen Holmwood VK2AEJ, Secretary is Eric Fossey VK2EFY, and Treasurer is Eric Van de Weyer VK2KUR.

The remainder of the portfolios for 1998/99 were allocated as follows: Affiliated Clubs, Ken Westerman VK2AGW; Federal Delegates, Michael Corbin VK2YC and Eric Fossey VK2EFY; Membership, Eric Fossey VK2EFY; Education, Brian Kelly VK2WBK and Pat Leeper VK2JPA; Parramatta Property, Eric Fossey VK2EFY; Security, Eric Van de Weyer VK2KUR; Dural Officer, Owen Holmwood VK2AEJ; QSL Liaison, Geoff McGrorey-Clark VK2EO; NTAC Chairman, Geoff McGrorey-Clark VK2EO; Publicity and Public Relations, David Thompson VK2NH; Policy and Strategy Chairman, Owen Holmwood VK2AEJ; Olympic Games Chairman, David Thompson VK2NH; Deceased Estates, Michael Corbin VK2YC; Trash and Treasure, Pat Leeper VK2JPA; Special Projects Officer, Stephen Paul VK2PS.

### Divisional President

Michael Corbin VK2YC fills the position of President of the VK2 Division. As most of you know, this is not the first time Michael has assumed the position of 'head honcho' of this Division. Maybe next month we will take an in-depth look at VK2YC and, shock! horror!, for the sceptics we might even be able to coax a suitable photo out of the archives of public office for you to put a head on the already huge shoulders of amateur radio

representation. Watch this space, you will be rewarded.

### Old Timers Honoured at the New South Wales Division AGM

We had a terrific opportunity at the Annual General Meeting in April to recognise the long standing of some members of the WIA, NSW Division.

Secretary Eric VK2EFY says, "A chance remark on the telephone to our Parramatta Office (which resulted in an in-depth enquiry) brought to light a number of current members with 60, or more, years membership of the Division".

As a result of that, a proposal was put to the Board of Directors that perhaps such long service should be suitably recognised. The Board agreed and decided that, as suggested, three different and distinctive certificates should be presented to members attaining 50 plus, 60 plus and 70 plus years of membership.

Nine members were invited to receive their certificates at the Annual General Meeting on 18 April 1998. They were: A H Gray VK2IJ, 75 years; W L Woolnough VK2GW, 75 years; Sir Allan Fairhall VK2KB, 70 years; G W Dukes VK2WD, 67 years; W C Hall VK2XT, 67 years; N McNaughton VK2ZH, 67 years; R Weeden VK2PN, 67 years; N A J Gough VK2NG, 65 years; and J G Cowan VK2ZC, 64 years.

We hope they will be around for many more years!!!

The then President of the Division, Geoff McGrorey-Clark VK2EO, also presented Aub Topp VK2AXT, Division Librarian, with Life Membership, recognising 43 years of dedicated service to the Division. Congratulations, Aub!

### Trash and Treasure

Last month we told you that we would be scheduling special Trash and Treasures at the Dural transmitting site, north west of Sydney. We've received a good response from this news as apparently people like to know just when the events will be held at Dural.

To recap, the Dural days will be held in March and November, with the other four events being held at Amateur Radio House at Parramatta. Trash and Treasures are held on the last Sunday of odd-numbered months of the year.

### VK2 Gearing Up for the Sydney 2000 Olympics and Paralympics

Over the coming months you will hear more of the activities of the Sydney 2000 Committee of the Wireless Institute, VK2 Division.

One of the promising ingredients is a system called APRS, short for Automatic Position Reporting System. The Committee is working on the development of this system in Australia and hopefully will integrate it into the Year 2000 Olympics and Paralympics. It is being seen as a device which will forge the way for VK2 amateurs to introduce this cutting edge technology into the Games, showing that the hobby is not only keeping up with new technology but setting targets. Already APRS presentations have gone to several clubs in the state including Illawarra Amateur Radio Society, Liverpool and Districts, Waverly Amateur Radio Society and a lot more.

If you would like to find out about the Year 2000 Olympic Games and Paralympic Games, and what the Division will be doing for them, or you would like to find out more about APRS and its potential role, contact me at the e-mail or postal addresses shown below and we will do our best to arrange a visit to your club.

### Affiliated Clubs Conference

Affiliated Clubs Officer Ken Westerman VK2AGW has asked me to remind you once again of the Affiliated Clubs Conference for 1998, which will be held at Amateur Radio House at Parramatta on Saturday, 13 June 1998.

If you wish to attend, agenda items and names of intended delegates are required at least two weeks prior to the conference. There will be lunch and dinner at a moderate cost, which will be advised. Coffee and tea, plus biscuits, will be provided. For further information contact the VK2 Divisional office. The conference will begin at 0900 local. Please arrive at least 15 minutes prior to this for registration.

### The Year 2000

Speaking of Affiliated Clubs and the year 2000, it would be good to see which clubs would like to lend a hand with the many things that will happen around the time of the Olympics and Paralympics.

For example, there will be one or more special event stations at the time of the Games, which will have to be manned at all hours of the night and day to make local and international contacts. A roster will have to be made up. Think about this and register the interest of your members at the Affiliated Clubs Conference.

### Thanks for the Support

I guess all that is left to be said on behalf of myself and my fellow Councillors is "thank you" for the support and vote of confidence. Here we are for another year to serve you and the fine hobby of amateur radio. Please allow

us to do that by approaching us with any matter in which you think we can be of assistance. It is your hobby and we would like to keep it that way.

For more information, contact the office or any of the Councillors. We will be only too pleased to hear from you. If you would like to get in touch with an individual Councillor, just contact our Divisional office and it will be arranged. Our freecall phone number is 1 800 817 644 and our address can be found on the WIA Divisions' page. If you are addressing e-mail to the office, please do so at [vk2wi@ozemail.com.au](mailto:vk2wi@ozemail.com.au).

There'll be more to report next month but, if you have anything you would like us to include as VK2 news, send it to me at PO Box 82, Springwood NSW 2777 or by e-mail to [dthom@penrithcity.nsw.gov.au](mailto:dthom@penrithcity.nsw.gov.au).

David Thompson VK2NH

### VK5 and VK8 Notes

Last month I advised that there had been insufficient nominations to require an election as part of the annual process. This is a situation which seems to have existed over a period of some years. I do not know whether it is as a result of each council in turn carrying out a satisfactory job or whether it is because members are merely complacent.

One thing I do know is that it is not a good thing for any organisation to constantly encounter. I also note that this situation is not confined to the VK5 Division. It seems generally that it has been, for many years, the same people who figure in office in most of the Divisions. New blood should certainly be welcome, and undoubtedly necessary, in most areas of the WIA both on a state and federal basis.

The result in VK5 was that at the Divisional Annual General Meeting (AGM) it was decided by the members that further nominations should be called for. An interim "caretaker" committee comprising those who were to continue on council, either due to having been elected for the normal two year term, or there as ex-officio members, would be kept in place for the time being.

This group, on this interim basis, will continue to ensure that Divisional matters are properly seen to. I can assure you that the business of the Division will be taken care of in a responsible manner. All those previous members of council have indicated their willingness to serve again on Council and their aid has been enlisted to make certain that the workload is still suitably spread.

As a result of arrangements made to carry out the wishes of the members, as expressed at the AGM, a requisition for a Special General Meeting has been received. This

meeting is to be held on the same evening as the June General meeting of the Division and will undoubtedly serve to rectify the situation which has occurred. It may well be that this "hiccup" in the system could result in some new nominations being received rather than us exist with exactly the same faces as previously.

Information regarding the actions taken is provided in more detail in the June issue of the *South Australian Divisional Journal* which will be received by members as an insert with this June 1998 issue of *Amateur Radio*.

### Divisional President's Annual Report

The content of the annual report from the President will appear, as an edited version to conserve space, in the June issue of the *Journal*. Colwyn Low VK5UE must be commended for his efforts in production of the *Journal*. Details of the report were also placed on the packet radio network addressed to VKNET.

### Clubs' Convention

Vice-President Jim McLachlan, who also holds the portfolio as Clubs Liaison Officer, has been busy contacting the various affiliated radio clubs within the Division with regard to the forthcoming Clubs' Convention. This activity is to be held during the month of June. It is hoped that a good attendance by club representatives will contribute to a better understanding as to the views of amateur radio operators generally throughout the Division.

In giving some reasonable thought to such matters, one cannot help becoming aware of the fact that the opinions of all amateur radio operators, both members and non-members are of importance.

The way in which the clubs interact with the Division is such that opinion is certainly influenced by the views of non-WIA members who belong to the clubs.

This fact is of importance and needs to be recognised by all as, when the authorities approach the WIA in connection with amateur radio matters, they regard the WIA as being representative of ALL amateurs in Australia, members and non-WIA members alike. There are those who are not prepared or happy to accept this view; however, it is a fact of life and is unlikely to change.

That this is a fact is recognised by the VK5 Division. The Council, being aware of this, has taken its responsibility seriously knowing that as it makes decisions these decisions will have an effect on amateur radio as a whole. One would hope that office bearers in other areas of the WIA would have the same realisation.

## Meeting Program

At present, arrangements are in hand for the meeting program for the coming months. This aspect of our activities is one where members may be able to help.

If you have any ideas for subjects for our meetings, or can suggest suitable speakers, we would be pleased to hear from you. It is expected that amongst the subjects to be covered will be talks on antenna design and testing, erection and dismantling of towers, telemetry of animals and DXpeditions. The speakers in each case are all very knowledgeable in their respective fields.

We will also be having our usual popular "Buy-and-Sell" evenings. We look forward to seeing as many members as possible at these meetings.

Ian Hunt VK5QX

## VK6 Notes

**G**day once again! After giving Chris (the other one) a scare that I wasn't going to be around to write the VK6 Notes this month, I finally made it back to civilisation from the wilds of Victoria. Time is short, hence most of the following is drawn from the minutes of the WIA and WARG meetings. By the way, why not email me at [vk6kch@amsat.org](mailto:vk6kch@amsat.org) with a copy of your club's minutes; that way a friendly Chris can give your club's activities a bit of exposure in this column too.

## Fee Rise?

There's movement at the station, for word has got around, that a fee increase (we regret) has got away (best I could do at 1 am). Some of you may have heard rumours of a modest fee increase. To quote from a senior official, "Council discussed the implications of a Federal motion regarding a possible increase in membership fees. Since the Council meeting, discussions have taken place among the new Directors and as a result VK6 will be moving for rescinding of the Federal motion. If successful, this would leave fees unchanged."

By the time you read this, it is hoped that the situation is decided one way or the other. Stay tuned to your weekly WIA broadcast.

## No Gate

Will VK6UU had a great idea to build a fixed-frequency HF gateway, allowing amateurs on 2 m to have access to 7 MHz (full-calls only!). An application for such a beast has just been rejected by the ACA, who cited two reasons:

- A claim that the WIA have a policy of "no repeaters below 29 MHz"; and
- The ACA will not approve a repeater transmitter being active without a signal on the input (whereas the simplest system simply

retransmits ambient noise from HF out on the 2 m port continuously).

These HF gateways are very common-place in the US (where technical innovation is rewarded, not repressed), and will be welcomed by the ageing amateur population as they lose quality access to HF upon moving into a retirement village, etc. A rearranged proposal is to be prepared for submission via the WIA Liaison Committee and the WIA VK6 Division.

## Easier Access to Amateur Licenses

Will VK6UU has a draft proposal for an examination free licence for consideration at the next meeting. This is essentially in-line with the idea I proposed in an earlier 'VK6 Notes', a digital-only, 70 cm-and-up licence to attract 'computer head' kids into the hobby (by the way, the cheapest licence-free devices I can find in Australia are about \$600 each, and just happen to use AX.25 anyway, although the physical layer is frequency-hopping spread-spectrum, in the amateur/ISM 2.4 GHz band).

On a similar note, Wally VK6KZ is trying to collate a list of technical qualifications and/or operator certificates of proficiency which could form the basis of exemptions from some or all of the amateur exams (in case you weren't aware, it's already possible for people with the right qualifications to be issued with an amateur licence without sitting a single amateur exam). If you know of a qualification which should be included, drop me an e-mail, and I'll pass it onto Wally.

## Search for Home

Keith VK6XH has been asked by the WIA to contact all metro clubs and groups with a view to collating their views on establishing a communal meeting place for all clubs, the Institute and the radio sections of the Scouts and Guides.

Keith writes: "As discussed at the Conference of Clubs and referred to on the WIA news service, the site of Whiteman Park has been proposed. I would like to hear your opinions on this proposal and whether you have an alternative site in mind. Access would be required 24 hours a day and the building would have to be big enough for each member group to have its own room as well as a meeting room. Space for possibly two towers would be needed, and the area would preferably be RF quiet. So far, the NCRG, and Scouts and Guides have expressed an interest in the principal of a common site, now it is your time to give your groups' opinions. I would appreciate a reply even if it is a negative one. I can be reached at [vk6wia@faroc.com.au](mailto:vk6wia@faroc.com.au). I look forward to your response. 73 de VK6XH".

So, do you want a club room? If so, do you want it at Whiteman Park? If you're not sure where that is, it's bounded by Gnangara, Beechboro, Marshall and Lord streets, approx 17 km NE of Perth GPO. If it goes ahead, it'll be quite a major investment, so now is the time to have your say!

## WARG News

\* The VK6RAP 6 metre repeater is back in service at Roleystone.

\* The CTCSS encoder for the news relay had its level increased on VK6RUF.

\* A 50 watt UHF Power Amp has been donated to the group by VK6ZRY for use on VK6RUF.

\* The VK6RMW Mt William site was inspected (by VK6LZ Cliff, VK6LZLZ Christine, VK6TRC Rob, VK6KG Kevin, VK6MM Mac and VK6AFA John) recently, to determine the cause of noise and desensising problems which had been affecting the VK6WIA News Relay system. A noisy guy connection was corrected but it appears the duplexer needs realignment and a further visit will be required.

\* The WARG AGM saw a change of officer holders, although there were no nominations for Technical/Equipment Officer or Councillor/Digital Co-ordinator. Any volunteers?

## Other Bits

\* The valve bank has been collected by the new custodian, Clarrie VK6JAS.

\* Need a book? Buy one from the WIA Bookshop! Contact Roy VK6XV on 08 9246 3642, before his bookshelf breaks.

\* Don VK6KH advises that Sid Smith VK6SJ, a foundation and Life member of the WA VHF Group, has become a Silent Key.

\* As it has been impossible to achieve a quorum at General Meetings for some time, it was agreed that the May 1998 VK6 WIA General Meeting would be the last. This will provide significant savings which can be used to support other services of the Division. If there is demand, then a quarterly weekend afternoon meeting may be tried.

Chris Hill VK6KCH

## "QRM" News — VK7 Notes

I am allowing myself a little indulgence at the start of this report to put in writing the things I, as President, want to see happen in the Tasmanian Division.

I feel that we have all become a bit too serious about our amateur radio. It's supposed to be a hobby - plenty of fun and fellowship with like-interest people all over our world. We don't see much of that in lots of areas of our hobby at the moment. Divisions and

members picking at each other over things that, if we stood back and examined them, are nothing to do with "Fun and Fellowship" - just one-up-man-ship!

This, my second year, is going to see a return to what amateur radio should be, especially in our Island State. I want to see our families much more involved. We don't hear much about our lady amateurs - can we get ALARA going more here. We've had 20-30 new and rejoined members in the last few months; it is up to every "old" member to make these people feel at home and wanted. Let's put the "hobby" back into amateur radio.

Our first Divisional meeting was held in Hobart on Saturday, 2 March. No earth-shattering news from it. Our first full meeting followed the AGM. We appointed a Web-site co-ordinator, Robert VK7RB. Look for our Web-site at <http://www.wia.tasnet.net>. We hope to have weekly upgrades of Tassie news.

There was standing room only at the Southern branch meeting on Wednesday, 6 May. The guest speaker was John Coles from the Hydro with an illustrated talk on their new 'you-beaut' communications system. After two hours he was allowed to stop answering questions and we proceeded with a necessarily fairly short meeting. The June meeting is a visit to the ACA's top-security listening station at Quoin Ridge.

Continuing the "fun and fellowship" theme, the Northern branch held a tea meeting at a local restaurant for hams and their families. A great success. We don't really need a full business meeting EVERY month.

The Northwest branch is applying for IOTA status for King Island. Flinders is already there, but King - no! Strange?

Ron Churcher VK7RN

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# Club News

## Fisher's Ghost Amateur Radio Club

Last year Fisher's Ghost Amateur Radio Club held a special event in memory of Arthur Harris. The participants were to receive an award for contacting the Club station on 80 metres.

Unfortunately, due to problems beyond our control, some records have been lost and therefore some certificates have not been sent. If anyone feels they are entitled to an award could they please contact the Club by writing to: Fisher's Ghost ARC Inc, PO Box 35N, North Campbelltown NSW 2560.

If they can supply any information about the time of the QSO, and the method of payment, etc this will help speed up the process of getting the Awards out. The Club would like to apologise for any inconvenience caused.

Chris VK2ZCJ  
Publicity Officer

## Liverpool and District Amateur Radio Club Inc

### Liverpool Club Auction

The LARDC will be holding their annual auction at the Scout Camp, Cambridge Avenue, Glenfield commencing at 11 am on Saturday, 18 July 1998.

Our auctioneer, Dave VK2KLV, will again be master of ceremonies. If a ham "can ham it up" as an auctioneer, Dave certainly tops the bill. Come along and join in the fun. A sausage sizzle, tea and coffee, as well as cool drinks will be available.

Don't forget your discarded gear to auction. And, most important, don't forget your money as the club needs the profits to pay for our repeater upgrades.

Garry Barker VK2TSR  
Honorary Secretary  
LARDC

## Twin Cities Radio and Electronics Club Inc

Our Amateur Radio Hamfest will be held on the weekend of 8 and 9 August 1998 at the Murray High School, corner of Kaitler's Road and Kemp Street, North Albury.

If you have any information about any of this stolen equipment, please contact John on 08 9470 1118, fax 08 9472 3795.

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It will commence on the Saturday from midday. Tea, coffee and biscuits will be available on arrival. If sufficient interest is shown, a live foxhunt will be held in the middle of the afternoon as a means of introducing visitors to the area.

On the Saturday evening a dinner will be held at the Commercial Club in Albury with two guest speakers for your entertainment. The cost for the dinner is the same as last time at \$25.00, with drinks at bar prices. Bookings and payments are to be confirmed by 29 July 1998.

On Sunday the doors to the hall will be opened at 0930. There will be talks and demonstrations on packet radio, SSTV and Internet usage. A talk-in will be available on the VK3RWE repeaters on 147.00 and 439.425 MHz, and simplex 146.500 MHz.

Tempting shack additions will be available from commercial and second-hand dealers, and tables are available at \$5.00 per 2.5 metres, or 8 feet. Hot and cold drinks and food will be available all Sunday.

Come along and make it a great weekend.

For further information or assistance, please contact the Club: PO Box 396, Albury NSW 2640, or phone Greg Sargent on 02 6021 1741 (BH) or 02 6021 5438 (AH).

Fred Armstrong VK3XLV  
Committee Member

## Radio Amateurs Old Timers Club

### Subscription Renewals

At a committee meeting in March it was decided to change our financial year to 1 April/31 March instead of 1 July/30 June as in the past.

This was notified to members in a paragraph on the inside front cover of the March 1998 issue of *OTN*. The reason was so that payment became due within two or three weeks of receipt of the renewal notice in the magazine, instead of three months later when it could easily be forgotten.

It worked very well for almost 90% of our members but, as at 1 May, about 70 people have not paid up, probably because they are still thinking of 1 July.

Our Secretary/Treasurer Arthur Evans VK3VQ requests that you check your records to make sure you are not on the list of those we have not heard from yet.

Allan Doble VK3AMD

## Redcliffe and District Radio Club Inc

The Annual General Meeting of the Redcliffe and District Radio Club Inc will be held at the Deception Bay State High School administration block on Monday, 15 June 1998 commencing at 7.30 pm.

Nominations for all executive positions are welcome. Nominations should be sent to the Secretary prior to the meeting, but nominations will be accepted from the floor.

Members are reminded club subscriptions are due on the 1 June.

The Club spent a very enjoyable weekend contesting the John Moyle Field Day from the Beachmere Sports Centre about 50 km north of Brisbane. Club station VK4IZ was operational on 80-10 m and Club station VK4RC was operational on 2 and 6 m. AC power was provided by three 5 kVA generator sets donated for the weekend by Coates Hire. Antennas of all shapes and sizes were strung up and some very interesting operating positions were assumed. A great time was had by all who attended. Many thanks to all stations who worked VK4RC and VK4IZ, and those who visited the station during the contest.

The Redcliffe Club Web site is up and running with all the Club information. Please visit us at <http://www.st.net.au/~vk4vw/rdr/> or check into our Sunday net at 7.30 pm on 3.612 MHz +/- QRM.

Peter Dawson VK4VW

## **WIA (VIC) Eastern Zone Radio Club**

### **Gippsland Technical Conference**

The WIA (VIC) Eastern Zone Radio Club is planning to conduct a technical conference relating to amateur radio on the weekend of Saturday, 11 July and Sunday, 12 July 1998.

The conference theme is that of weak signal VHF, UHF and microwave communications. However, any topic related to amateur radio, or technical advancement in the field of communications that may be of interest to amateurs, will be considered by the organising committee.

Possible topics for discussion include: equipment for microwave bands; propagation at VHF, UHF and microwaves; and antennas for VHF, UHF and microwaves.

Sessions can be tailored to the presenter's requirements. Lecture theatres with video projection facilities will be available. It would be appreciated if presenters could submit their paper prior to the event to facilitate the production of the Proceedings volume.

The conference will be held at the Gippsland Campus of Monash University, located in Churchill in the Latrobe Valley, approximately 170 km east of Melbourne. Travel time from Melbourne central is typically less than two hours, on dual carriageway, freeway standard highway for most of the trip. Transport from Morwell or Traralgon rail stations, or the Latrobe Valley airfield, can be arranged with prior notice.

Conference registration costs have not yet been set. It is planned to publish the papers presented as a stand alone volume of Proceedings. It is anticipated that registration will be in the order of \$20-30 per person, including a copy of the Proceedings. Current planning includes an optional Conference Dinner on Saturday evening at a local restaurant, the cost of which will be additional to the Registration fee. Accommodation in single rooms can be arranged at \$20 per person per night, bed linen to be provided by the attending person/s. Alternatively, the Organising Committee can provide details of other local accommodation.

Current planning is for the Conference to commence at 1300 hrs on Saturday. The detailed program will be developed once expressions of interest confirm adequate interest. If there is sufficient interest, it may be possible to arrange a tour of some of the local industrial sites on Sunday, eg Loy Yang Power Station, or visitors may choose to explore some of the other local attractions, such as the Gourmet Deli trail.

Any person interested in attending, either as a presenter or as a "listener", should contact the Organising Committee as soon as possible.

Peter Freeman VK3KAI  
PO Box 273, Churchill VIC 3842  
03 9902 6416 (W) 019 388 044  
[peter.freeman@sci.monash.edu.au](mailto:peter.freeman@sci.monash.edu.au)  
VK3KAI@VK3BVP.#SEV.VIC.AUS.OC  
Ralph Edgar VK3WRE  
03 5174 0987  
[VK3WRE@VK3BVP.#SEV.VIC.AUS.OC](mailto:VK3WRE@VK3BVP.#SEV.VIC.AUS.OC)

98:08:09, 98:08:10, 98:08:11 and 98:08:12 were, on legal advice obtained by the President, all out of order.

Subsequently all were withdrawn by VK2 except 98:08:10 which required the President to rule it out of order.

The so-called suspension of the Editor because of his publishing of letters in the February issue of *Amateur Radio* thought to be inappropriate, are the Editor's words entirely.

The reasons for having a Guest Editor were never given verbally or in writing to the Editor.

Secondly, the unavailability of the auditor's report caused the President to adjourn the meeting sine die. The delegates did not vote to adjourn the meeting to a date to be fixed. Neil Penfold VK6NE  
Director WIA

## **May Editorial**

I wish to protest at the direction and content of AR magazine's editorial comment, since guest editorials were ushered in.

The May editorial, suggesting that VHF activity was founded by the arrival of surplus car-phones, which if anything, have been an anathema to true VHF work, is insulting to VHF experimenters, or at least, historically inaccurate.

Ross Hull, an internationally famous Australian VHF man, cemented his experiments and records in the history books, long before any taxi radios were on the drawing board, let alone placed on the surplus market. The early days of 52 MHz AM, some exotic bands to which we no longer have access, and of course the 144 and 432 MHz bands, all saw outstanding home-brew pioneer work.

To further suggest that the availability of synthesised, channelised radios is some sort of revolution is a clear indication of the author's deficient knowledge of the wide and diverse range of exciting activities on hand.

VHF operators, in the main, totally eschew repeaters, FM, etc. To link the terms VHF experimentation and FM is the epitome of an antithesis.

This style of editorial might suit the local newspaper but we deserve an editorial that is at least thoroughly researched.

I dread the thought that such content might be the basis upon which a newcomer assesses our hobby.

Christopher Davis VK1DO  
123 Hawkesbury Crescent  
Farrer ACT 2607  
[cdavis@spirit.com.au](mailto:cdavis@spirit.com.au)

(May issue contained the last of the editorials to be written by the Guest Editor Ed)

# **Over to You**

***All letters from members will be considered for publication, but should be less than 300 words. The WIA accepts no responsibility for opinions expressed by correspondents***

## **Changes at the AGM**

There were some errors in the reporting of the AGM held last March, and printed on page 3 of *Amateur Radio* for May 1998.

Firstly, the proceedings of the Federal Council in relation to the Editor. The motions from VK2, namely 98:08:07, 98:08:08;

# HF Predictions

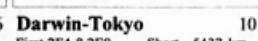
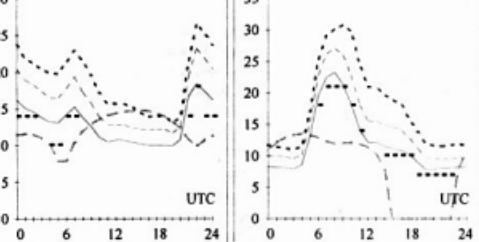
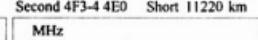
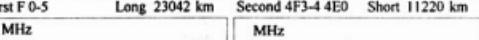
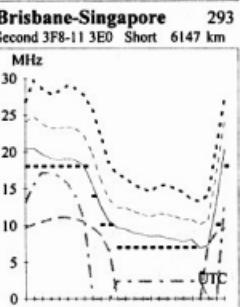
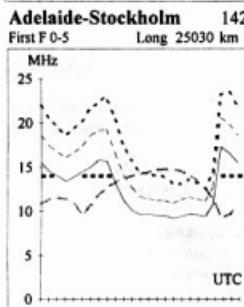
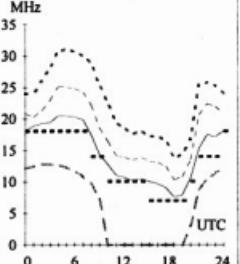
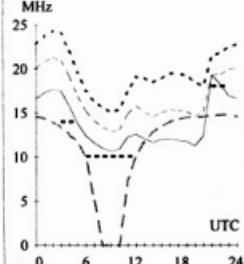
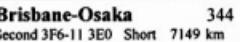
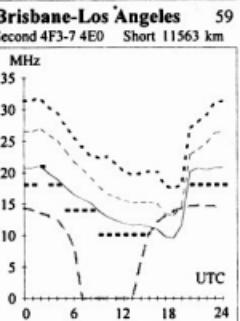
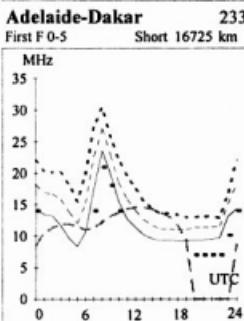
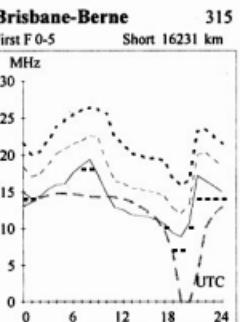
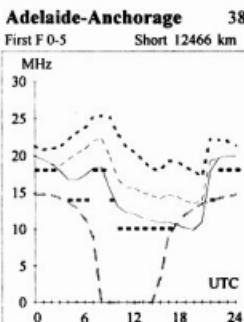
Evan  
Jarman  
VK3ANI

These graphs show the predicted diurnal variation in key frequencies for the nominated circuits. They also nominate the best amateur band for communication.

T Index: 73

- UD
- F-MUF
- E-MUF
- OWF
- ALF
- Best band

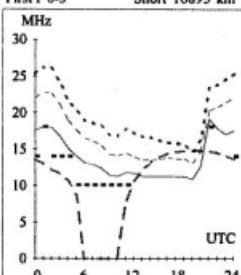
Time scale



**Hobart-Boston****78****Melbourne-Auckland****97****Perth-Honolulu****70****Sydney-Miami****86**

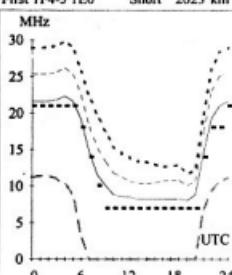
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Short 16895 km



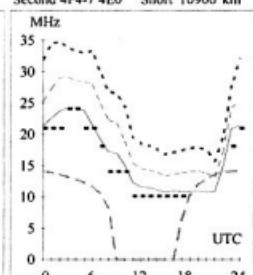
First 1F4-5 1E0

Short 2623 km



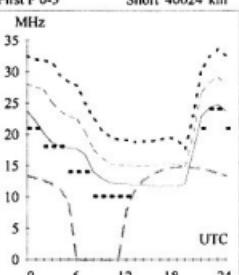
Second 4F4-7 4E0

Short 10906 km



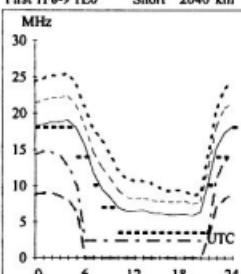
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Short 40024 km

**Hobart-Christchurch****101**

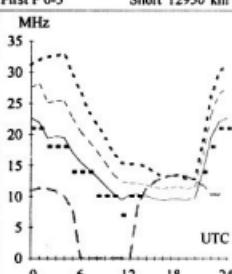
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Short 2040 km

**Melbourne-Lima****133**

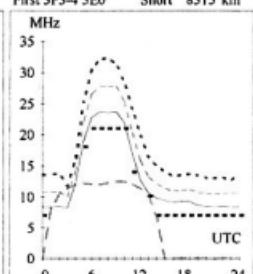
First 0 0-5

Short 12950 km

**Perth-Johannesburg****248**

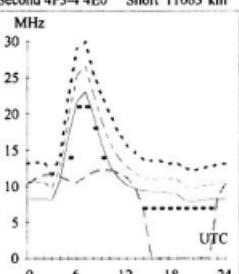
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Short 8315 km

**Sydney-Pretoria****230**

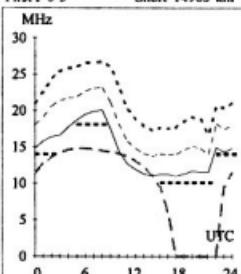
Second 4F3-4 4E0

Short 11063 km

**Hobart-Moscow****312**

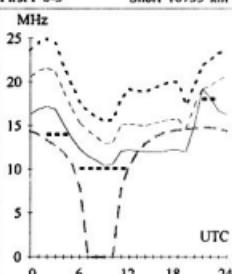
First F 0-5

Short 14963 km

**Melbourne-Montreal****62**

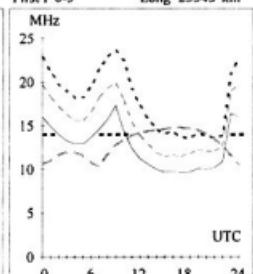
First 0 0-5

Short 16733 km

**Perth-London****133**

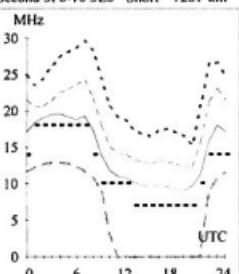
First F 0-5

Long 25543 km

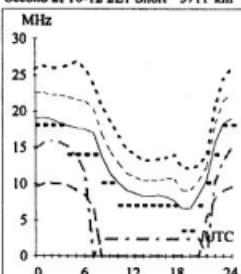
**Sydney-Taipei****330**

Second 3F6-10 3E0

Short 7261 km

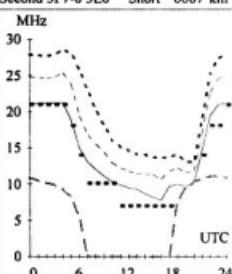
**Hobart-Port Moresby****0**

Second 2F10-12 2E1 Short 3711 km

**Melbourne-Papeete****98**

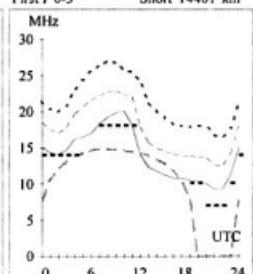
Second 3F7-8 3E0

Short 6687 km

**Perth-London****313**

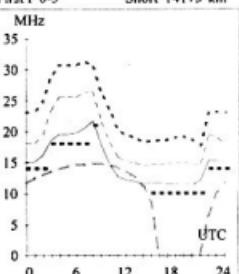
First F 0-5

Short 14481 km

**Sydney-Tel Aviv****287**

First F 0-5

Short 14173 km



# HAMADS

- Hamads may be submitted on the form on the reverse side of the *Amateur Radio* address flysheet. Please use your latest flysheet where possible.
- Please submit separate forms for **For Sale** and **Wanted** items, and be sure to include your name, address and telephone number (including STD code) if you do not use the form on the back of the *Amateur Radio* address flysheet.
- Eight lines (forty words) per issue free to all WIA members, ninth and tenth lines for name and address. Commercial rates apply for non-members.
- Deceased estates Hamads will be published in full, even if the ad is not fully radio equipment. WIA policy recommends that the serial number of all equipment offered for sale should be included in the Hamad.
- QTHR means the address is correct in the current WIA Call Book.
- Ordinary Hamads from members who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.
- Commercial advertising (Trade Hamads) are pre-payable at \$25.00 for four lines (twenty words), plus \$2.25 per line (or part thereof), with a minimum charge of \$25.00. Cheques are to be made out to: WIA Hamads.
- Copy should be typed or in block letters, and be received by the deadlines shown on page 1 of each issue of *Amateur Radio*, at:

Postal: 3 Tamar Court, Mentone VIC 3194  
Fax: 03 9584 8928  
E-mail: vk3br@cs31.aone.net.au

## TRADE ADS

- **AMIDON FERROMAGNETIC CORES:** For all RF applications. Send business size SASE for data/prices to RJ & US Imports, PO Box 431, Kiama NSW 2533 (no enquiries at post office please ... 14 Boanya Ave Kiama). Agencies at: Assoc TV Service, Hobart; Truscotts Electronic World, Melbourne and Midura; Alpha Tango Products, Perth; Haven Electronics, Nowra and WIA Equipment Supplies, Adelaide.

- **WEATHER FAX programs for IBM XT/ATs \*\*\* "RADFAZ" \$35.00,** is a high resolution short-wave weather fax, Morse and RTTY receiving program. Suitable for CGA, EGA, VGA and Hercules cards (state which). Needs SSB HF radio and RADFAZ decoder. \*\*\* "SATFAX" \$45.00, is a NOAA, Meteor and GMS weather satellite picture receiving program. Needs EGA or VGA or WEATHER FAX PC card, + 137 MHz Receiver. \*\*\* "MAXISAT" \$75.00 is similar to SATFAX but needs 2 MB of expanded memory (EMS 3.6 or 4.0) and 1024 x 768 SVGA card. All programs are on 5.25" or 3.5" disks (state which) plus documentation, add \$3.00 postage.

ONLY from M Delahuntly, 42 Villiers St, New Farm QLD 4005. Ph 07 358 2785.

- **HAM LOG v.3.1 - Acclaimed internationally as the best IBM logging program. Review samples....AR:** "Recommend it to anyone". The Canadian Amateur: "Beyond this reviewer's ability to do it justice. I cannot find anything to improve on. A breakthrough of computer technology" ARA: "Brilliant". Simple to use with full help, the professional HAM LOG is immensely popular (now in its 5th year), with many useful, superb features. Just \$59 (+ \$5 P & P), with a 90 page manual. Special 5 hour internet offer. Demos, brochures available. Robin Gavendie VK2VN, 02 369 2008 BH, fax 02 369 3069. Internet address [rgh@ozemail.com.au](mailto:rgh@ozemail.com.au)

## FOR SALE NSW

- Deceased estate of Hans VK2AOU: **Yaesu YO-901 Multiscope, YAESU 901DM** tx/rx, \$800 O.N.O. **Daiwa CS-201 antenna switch, \$40.** **Daiwa CN-250** crossed needles power meter, \$50. **16 m crank-up mast, three section, tilt-over, with Kenpro KR-400 rotator,**

\$900 O.N.O. **Kenpro KR-500** elevation rotator, \$250 O.N.O. **Lugarno, 02 9153 0621.**

- **SATFAX** decoder board and software, great for older PCs to receive satellite pictures, \$60. **Multi-7.2 m FM tx/rx, \$80.** **HANU packet board, \$35.** **HF DeskJet 520 printer, VG condn, \$120.** **Star LC10 II dot matrix printer, \$70.** **Yaesu FT-747GX with FM and narrow filters, \$850.** **H H Leykam VK2HL, QTHR, 02 9971 9795.**

- **Icom 02A** 2 m handheld, manual, extra batteries and antennas, will arrange COD delivery, \$200. **R C Wishart VK2BRW, 07 5524 3722.**

- **DRS1** card, 2 ports with manual and drivers, \$150. **Tiny 2, \$150.** **FM-828s** (147.575, 145.050), \$40 each. **FM-900**, voice and packet, \$100. **Plessey 70 cm rig, \$130.** **FM-747** 20 cm packet, \$50. **Alinco DR-112** 2 m, \$300. **Azden PCO-4000** 2 m, \$180. **Light duty rotator, \$120.** **EJ Virtue VK2EJV, 02 6689 5137 (BH), 02 6689 5040 (AH), e-mail: [evirtue@nor.com.au](mailto:evirtue@nor.com.au)** All can be COD Australia Post.

• **Kenwood TS-505 HF** tx/rx, as new, \$985. **Uniden 2510** 10 m mobile, \$275. **Uniden Sundowner UHF CB** tx/rx, \$190. **Yaesu FT-26** 2 m h/held, \$190, Urgent sale! **R E Taylor VK2AOE, QTHR, 02 9449 6364.**

- **Yaesu PCU-2500R** 2 m tx/rx, VGC, \$350. **Yaesu FT-747** tx/rx, good condn, \$750. **Yaesu FT-290RH** 2 m tx/rx, charger, car adapter, speaker/mic, VGC, \$350. **Yaesu FY-901** external VFO, \$200. **KW-1000 dummy load, good condn, \$125.** **Hi-Mound telegraph key, paddle, never used, \$100.** **Peter VK2DBI, QTHR, 02 6367 5095.**

- **Ameritron AL811H linear amplifier**, 800 watts PEP, 160 to 10 metres, export model, s/n 17651X, 4 by 811A tubes, still in carton, never used, \$1600. **Brian VK2FG, QTHR, 02 4991 4145.**

- **TH6DX** 6 element triband beam, in good mechanical condn, \$249. **18 m (60 ft) three section Hills galvanised wind up tower with guys and turnbuckles, \$399.** **Beam and tower dismantled Sydney and reasonable delivery arranged.** **Shack clearance!** **Icom IC-720A** HF 12 V mobile tx/rx, 100 W Tx, general coverage 100 kHz - 30 MHz, \$295 (works but mechanically damaged front panel). **DC PSUs**, various

to 10 A. **386 IBM clone computer, \$200.** **Epson NX15 9 pin printer, up to 14 inch wide, \$95.** **PK232MBX packet/Wefax modem, \$95.** **HF Rx USB/LSB, 100 kHz to 30 MHz, \$225.** **Marine 27 MHz AM Tx/Rx and antenna, \$50.** **Bench drill, 5 speed, 10 mm, \$55.** **AT-120 mobile ATU, 80-10 m, \$55.** **Ted VK2EZQ, QTHR, 019 460 437.**

- **QTH**, with Council permission for 60 ft tower, 3 bedroom brick veneer on flat block, walk Asquith station near Hornsby, block also has DA for subdivision; invest for the future, new house, north aspect, high side of street, good DX position on ridge, no power lines, new sunspot cycle coming. **Ted VK2EZQ, QTHR, 019 460 437.**

- **Yaesu FT-23R, \$200.** **FT-200, \$180.** **Icom IC22A, \$100.** **Philips FM828/25, \$50.** **AR1000XLT scanner, \$400.** **Realistic PR30 scanner, \$50.** **Amstrad 386 computer and Canon laser printer, \$500.** **Stuart VK2YCS, 02 9499 2484 (AH), 02 9353 4158 (BH).**

- **Collins S-line**, consisting of 7553B, 3253 and 516F2, \$900. **Tom VK2OE, 02 4646 1024 (AH).**

- **Kenwood TS-830S, s/n 1041993, with remote VFO-240**, service manuals, two sets spare finals and drivers, MC-50 mix. **Daiwa DK210 keyer and Bunker twin paddle, all VGC, \$1000** the lot. **Kevin VK2JJS, QTHR, 02 9144 3279, fax 02 9144 2841.**

- **Radio and Hobbies magazines, Vol 2 - 18, complete radio and band, plus loose copies 1961 to 1977, some missing, offers, more than \$100 wanted for the lot.** **David VK2COF, PO Box 2092, Bowral NSW 2576.**

## FOR SALE VIC

- **Deceased Estate Werner VK3WOH, Antennas mast, 2 sections, 6 m, triangular base and winch, bottom hinged, plus 6 m telescopic mast, \$90.** **Kenwood TS-140S, \$1000.** **Kantronics PC3, \$150.** **386 computer and printer, \$350.** **Station Master antenna, \$20.** **Crown rotator, \$10.** **Microt LCD multimeter 22-188, \$25.** **Regency SWR-2 SWR meter, \$20.** **Icom IC-2A, s/n 04812, \$120.** **Contact Helmut VK3CHN, QTHR, 03 9481 2064.**

- **Sale due to increasing deafness.** **Kenwood TS-43X (TS-430), s/n 4071759, matching PSU, s/n 5020583; Hustler 5-band vertical, all bought new and are unmodified, in good order, \$1000 O.N.O.** **Jack VK3BJP, QTHR, 03 5275 1555.**

- **HF linear amplifier, 2 x RS1007 (4-125A) in GG-80, 40, 20, 10 and 10 m, \$100.** **PSU, cables plus spare finals, \$250.** **Trevor VK3JHG, QTHR, 03 5829 0058.**

- **Sale of complete station of VK3COP because of terminal illness: 19 m tower, wind-up, tilting, extra guys, Nally Tower computations, with coax cables and VHF antenna, \$500.** **Werner Wolf 3 el 3 band Yagi, \$300.**

- **Daiwa rotator, control unit, cables, \$400.** **Kenwood TS-430S, \$900.** **Kenwood 25 A PSU, \$200.** **Kenwood 50 speaker, \$40.** **Kenwood AT-200, ATU, 2000, Electronic CW paddle, \$40.** **Kenwood MC60 despike, \$75.** **Kenwood TR-8300 UHF Icver, \$175.** **Kenwood TR-3200 UHF tx/rx, \$90.** **Icom IC-290H all mode VHF tx/rx, \$400.** **Icom IC-2A VHF tx/rx, \$90.** **13.8 V/7 A homebrew PSU, \$25.** **Jaycar QM1310 digital meter, \$20.** **Analogue V-A-Ohm (scale 10 by 5 cm), \$15.** **SMI SWL-15 meter, \$25.** **MEIIX SWR meter, \$40.** **Yaesu FL-2100B linear amplifier, \$650.** **TRIO CO-1303D sweep-gen/oscilloscope, \$200.** **Sanyo "Campanette" 30 kHz-30 MHz, port, \$40.** **DSE soldering station, \$25.** **Batteries, nicads, lead acid, etc from \$5.** **Several power plug packs, from \$5.** **Battery chargers (nicads), \$20.**

**A&R Battery Eliminator**, 4.5-6-7.5 V 0.5 A, \$15. **Noise Bridge**, \$8. **"Archer" head phones**, \$10. **Vintage studio mic** on table stand, \$35. **Studio mic**, dynamic, on stand on casters \$40. Lots of **coax switches**, **plugs**, **cables**, **UHF** and **VHF antennas**, etc, best offers. Enquiries to Harry VK3AJX, 03 9802 5704.

● **Icom IC-725**, all HF bands, all modes, CW filter, mic, manual, s/n 003152, in carton, VGC, \$950.

**Kenwood TM-731A** 2 m/70cm, 5.4W FM, mic, manual, s/n 0062783, VGC, \$375. **Dalwa CN630** cross-needle SWR/power meter, 144-450 MHz, 20-200 W, as new in carton, \$75. **Cushcraft 6 m Ringo**, as new, \$75. Andy VK3UJ, QTHR, 03 9726 8879.

● **Icom IC-735 HF txvcr**, mic, manual, service book, excellent condn, \$790. Alan VK3AMT, 03 9789 9106.

● **Grundig GDO Model 701**, 1.7-17.5 MHz-250 MHz, s/n 3350, \$100. **Leader Signal Generator**, 120 kHz-350 MHz, \$50. **SCR221-AK Frequency Meter**, 125 kHz-200 MHz, s/n 3131, complete with calibration charts, VGC, \$30. **CRO Type M/D32**, with manual and spare PSU, offer. **Mosley TA33 20/15/10 beam**, has been in storage for the last 20 odd years, with rigging details and ops data, \$100. **Advance Signal Generator**, 2-190 MHz, s/n 191, \$30. **Command Tx**, unmodified, offer. **Class C Wavemeter**, offer. **MN Compass receiver**, modified, free. **Large quantity of ARs**, free. **SCR522**, unmodified, free. **Vinton txvcrs**, modified to 2 m, free. **70 MHz base station**, unmodified, free. Quantity of old gear suitable for your junk box, free. Disposal due to ill-health. Peter VK3XK, QTHR, 03 9583 2895.

● **Geloso VFO** 4/104. **BC348R** on AC 5244 CDL, 11414 WF43. W Damel VK3NQ, QTHR, 03 5398 1734.

● **Command receivers**, 190-550 kHz and 6.9-11 MHz, VGC, no mods, no holes, \$150 each with dynamotor. **Surplus Radio Conversion** manuals, vol 1, 2 and 3, by Everson and Beach, also **Surplus Schematics Handbook**, \$100 the lot. Peter VK3LZ, QTHR, 03 5156 2053, [jupiter.net-tech.com.au](http://jupiter.net-tech.com.au)

● **Cushcraft R7 7-band vertical antenna**, covers 10, 12, 15, 17, 20, 30 and 40 m, EC. Geoff VK3KB, 03 9802 0441.

● **Estate of the late Stan VK3TE**. **IC-2073 handheld 2 m txvcr**, with handbook and charger, little used and in original packing, \$255. **ONO. IC-2070 UHF/VHF FM txvcr**, only a few months old, complete in original packing with handbook, \$690. **ONO. 13.6 V 20 A continuous PSU** for the IC-207H above, very sturdy, \$225 ONO. Harold, QTHR, 03 9596 2414 anytime.

● **Kenwood 114/144/40 MHz 25 watt FM txvcr**, \$375. **Icom IC-229H** 50 watt 2 m FM txvcr, \$300. **Kenwood TR-7950** 50 watt 2 m FM txvcr, \$250. **Yaesu FT-23R** 2 m hand-held, \$125. **13.8 V 12 A PSU**, \$80. **Swan 350 SSB txvcr**, complete, \$200. **Kenwood TS-430**, FM board, AM filter, \$725. Ron VK3OM, QTHR, 03 5944 3019.

● **Yaesu FT-101**, s/n 1H110409, with FT-101 VFO, s/n 1E276. **HAMEG HM205-2 20 MHz dual beam storage CRO**, \$200. **Emotator 502GAX** rotator, \$200. **Security system**, 2 cameras, monitor, \$70. **TH6DXX tri-band 4 el beam**, \$300. Keith VK3AFI, QTHR, 03 5221 3658.

## FOR SALE QLD

● **LDF4-50 and LDF5-50 heliax cable**, \$3 and \$5 per metre. Connectors to suit both types from \$25 each for LDF4-50 and \$50 each for LDF5-50. Approx 80 m of **LDF6-50**, can supply new connectors to suit, what offers? **75 ft wind-up tower**, \$500 O.N.O. RG Mackie VK4WSR, 07 3348 7616 (AH).

● **Singer Gertsch FM10C** signal generator/test set, synthesised LF to 599 MHz, mainframe and 5 plug-in modules gen RF output and attenu and Tx monitor input, Tx freq offset meter, FM deviation meter and oscillator, 2 CROs with internal audio oscillator, one each for measuring AM and FM that double as audio CROs, good working condn, mains and ext 12 V DC operation, handbook, \$450. **Gould audio oscillator**, 10 Hz to 1 MHz in 4 ranges, sine and square wave outputs, level meter, separate balanced output, 240 V AC, portable, \$50. Gary VK4AR, 07 3353 1695.

## FOR SALE SA

● **Kenwood TR-2400** 2 m handheld rig, s/n 0115168, with ST-1 base stand/mains charger, BC-5 car battery charger, **Shure handheld mic**, \$300 O.N.O. Jim VK5JL, QTHR, 08 8295 8094.

● **8 element log periodic**, must sell. **Assorted CB and amateur gear**. Send SASE for list. Paul VK5MAP, PO Box 76, Peterborough SA 5422, phone/fax 08 8651 2398.

● **Yaesu FRG-7700** rxvcr, memory fitted, manual, excellent condn, original carton, s/n 1H100275, \$400. **Yaesu FRT-7700** ATU, s/n 2110244, \$50. **Yaesu FRV-7700** frequency converter 118-150 MHz 50-59 MHz, s/n 1H101708, \$50. **Yaesu FRA-7700** active antenna, s/n 3K130054, \$50. The lot, \$500. John VK5CJP, QTHR, 08 8336 5404.

## FOR SALE WA

● **Kenwood TS-930S**, auto ATU, 240 V, excellent condn, \$1300 O.N.O. **Yaesu FT-980**, 240 V base, new final transistors just fitted, excellent condn, \$1350 O.N.O. Will swap one of the above for TS-50, FT-900, IC-706, DX-70, etc, cash adjustment either way possible. Talk to me! R K Bainbridge VK6XH, 08 9279 4923 evenings/weekends.

● **Hills 100 ft wind-up mast**, \$500. **Yagi tri-band antenna**, \$350. **Daiwa DC-7001A** rotator, controller and cable, \$300. Offers considered. F D Morgan VK6FRE, WICEN Secretary, 08 9276 4897.

● **FT-747GX**, unused, still boxed, \$1000. **FT-23**, used, with charger. Microspur car adapter, FN10 battery, \$150 the lot. Peter VK6EUV, 0419 869 291 mobile/message bank.

● **Yaesu FT-990 HF transceiver**, immaculate condition with desk mic, original box and manuals, \$2300. 2 element 2 m crossed Yagi beam, \$60. 13.5 V @ 3 A power supply, \$40. SOTA solid state HF linear amplifier, 4 W in for 100 W out, 13.5 V operation, \$180. **Trio 1** 1 kW low-pass filter, \$40. **Pair 4CX250V** valves and HF bases, \$30. **1296 MHz to 144 MHz RX converter**, \$40. **German Morse key**, \$40. **Receiver noise generator and alignment aid**, \$50. Phil VK6APH, 08 9245 3973.

● **Yaesu FTV-707 UHF/VHF transverter** with 50, 144 and 430 MHz modules, all new in original boxes with manual. What offers? Merv VK6BMT, QTHR, 08 9399 2024.

● **Deceased estate VK6TP**. **Kenwood TS-950SD HF txvcr**, excellent condn. **Kenwood TL-922 HF linear**, excellent condn. **Two new Einac 4CX250BC valves**. **Com-an-tenna 20/15/10 beam**, as new. **Crank-up/tilt-over mast** to 30 feet. Written offers invited. No reasonable offers refused. Merv VK6BMT, QTHR, 08 9399 2024.

## FOR SALE TAS

● **Icom IC-02N** 2 m handheld txvcr with memories, scanning, tone encoder, etc. Perfect condn. \$180. Jim VK7FJ, 03 6228 3820.

● **Yaesu FRG7** rxvcr, 240 V AC, good condn, \$150 O.N.O. **Yaesu FT-101Z HF txvcr**, WARC bands, excellent condn, \$475 O.N.O. Barry VK7BE, 03 6327 2096, 0419 346 272.

## WANTED NSW

● **Old heavy communications receivers**, the heavier the better! I will collect personally from the Sydney area. Wrecked or going no matter, will pay \$55 for a hernia. **Keith SWL** who restores the gear. Contact John Wright (02) 9533 6261.

● **Yaesu FTV-107R** or other transverter. David VK2DPP, 02 4397 2385 (AH).

● **Digital display kit for FT-101Z**. Bob VK2AVQ, QTHR, 02 9878 2359.

● **Plugs for Bird 43 ThruLine wattmeter**, elements 5C, 2.5K and 25K. Guy VK2BBF, QTHR, 02 4751 6726.

● **Antennas**: **Gap Voyager**, KLM KT-34KA, **Hy-Gain TH7DX**. Rotators: **HAM 3**, **HAM 4**, **Collins series 8000** system. Values 3-1000. Tom VK2OE, 02 4646 1024 (evenings).

● **Yaesu FT-101B manual and schematic**, will gladly postage and photocopying costs. Andrew VK2APA, 02 4961 5095, e-mail [c960872@alinga.newcastle.edu.au](mailto:c960872@alinga.newcastle.edu.au).

## WANTED VIC

● **"The Radio History of the Royal Flying Doctor Service"** by John Behr, to buy or loan. Johnson Viking 500 AM/CW transmitter. Rodney VK3UG, QTHR, 03 5762 1454.

● **Circuit and operating instructions for Transmission Products Pty Ltd valve tester type 862**, all costs accepted. John VK3CJB, QTHR.

● **Yaesu FT-102 txvcr service manual**. E G Pon VK3AEP, QTHR, 03 9580 2568.

● **Circuit and manual for University Supertracer Model AST No 241**. Brian VK3WYN, QTHR, 03 9560 0918.

● **Yaesu FTV-250** 2 m transverter. **Yaesu YD148** desk mic. **Yaesu FV-101B** PSU for FT-101E. Bill VK3HX, QTHR, 03 9807 9172.

● **Wireless Set No 11 chassis** for parts or rebuild. Clem VK3CJB, QTHR, 03 5126 2064, [clem@gippsafe.vic.edu.au](mailto:clem@gippsafe.vic.edu.au).

● **Manual for Revox A77** reel to reel tape recorder, for photocopying, cost re-imbursed. Alan VK3AL, QTHR, 03 9690 1691, [alonel@netlink.com.au](mailto:alonel@netlink.com.au)

● **VZ200/300 RTTY module**. DSE catalogue No 6318. Bruce VK3YBW, QTHR, 03 9527 2661 after 6 pm.

## WANTED QLD

● **Kenwood TS-520S power transformer** 1 L Schmidt VK4ZJ, QTHR, 07 5485 3324.

● **Yaesu FT-101Z** for spares. Lionel VK4DR, QTHR, 07 3269 1058.

## WANTED SA

● **WW2 receiver BC342, BC348** or similar, any condn for restoration, prefer coils and gang to be unmodified. Rob VK5RG, QTHR, 08 8379 1889.

● **Ring gear** part number 7501-005 for **Daiwa rotator Model DR-7600A**, or second hand DR-7600A for spare parts. Paul VK5MAP, 08 8651 2398.

● **34th Annual Mount Gambier Radio Convention and Fox-Hunting Championships**, 6-7 June 1998 (Queen's Birthday weekend). Full schedule available on SERG Website at <http://www.serg.net.au/serg/default.htm>

## WANTED WA

● **Rugged HF linear amplifier** suitable for 48-hour contesting. Alpha, Ten Tit Titan, or Emtron DX-2 (4CX1600B or 2 x 4CX800A versions); amplifier must be in good condn. Steve VK7VZ, 08 9298 9330.

## MISCELLANEOUS

● **The WIA QSL Collection** (now Federal) requires QSLs. All types welcome, especially rare DX pictorial cards, special issues. Please contact the Hon Curator. Ken Matchett VK3TL, 4 Sunrise Hill Road, Monrose VIC 3765, tel 03 9728 5350.

● If you got your licence before 1973 you are invited to join the **Radio Amateurs Old Timers Club** A \$2.50 joining fee plus \$5.00 per year gets you two interesting Journals plus good fellowship. Arthur Evans VK3VQ or Milton Crompton VK3MN can supply applications forms. Both are QTHR in any Call Book.

● **Liverpool Club Auction**, Saturday, 18 July at Scout Camp in Cambridge Avenue, Glenfield, checkins at 10 am, auction commences 11 am. For further details contact Gary VK2TSR, Honorary Secretary of LARDC, at PO Box 690, Liverpool NSW 2170, or 02 9631 9005 (BH).

● **34th Annual Mount Gambier Radio Convention and Fox-Hunting Championships**, 6-7 June 1998 (Queen's Birthday weekend). Full schedule available on SERG Website at <http://www.serg.net.au/serg/default.htm>

# WIA Division Directory

The WIA consists of seven autonomous State Divisions. Each member of the WIA is a member of a Division, usually in their residential State or Territory, and each Division looks after amateur radio affairs within its area.

| Division  | Address   | Officers                  | Weekly News Broadcasts   | 1998 Fees   |
|---|---|---------------------------|--|---|
| <b>VK1 ACT Division</b><br>GPO Box 600<br>Canberra ACT 2601   | President Hugh Blenning<br>Secretary John Woolner<br>Treasurer Les Davey  | VK1YYZ<br>VK1ET<br>VK1LD  | 3.570 MHz LSB, 146.950 MHz FM each Sunday evening commencing at 8.00 pm local time. The broadcast text is available on packet, on Internet aus.radio.amateur.misc newsgroup, and on the VK1 Home Page <a href="http://email.mla.gov.au/~cmakirn/viact.html">http://email.mla.gov.au/~cmakirn/viact.html</a>  | (F) \$72.00<br>(G) (\$58.00<br>(X) \$44.00                              |
| <b>VK2 NSW Division</b><br>109 Wigram St<br>Parramatta NSW<br>(PO Box 1066<br>Parramatta 2124)<br>Phone 02 9689 2417<br>Freecall 1800 817 644<br>Fax 02 9633 1525 | President Michael Corbin<br>Secretary Eric Fossey<br>Treasurer Eric Van De Weyer<br>(Office hours Mon-Fri 11.00-14.00)  | VK2YC<br>VK2EYF<br>VK2KUR | From VK2WI 1.845, 3.595, 7.146*, 10.125, 14.160, 24.950, 28.320, 29.120, 52.120, 52.525, 144.150, 147.000, 438.525, 1281.750 (* morning only) with relays to some of 18.120, 21.170, 58.750 ATV sound. Many country regions relay on 2 m or 70 cm repeaters. Sunday 1000 and 1930. Highlights included in VK2AWX Newcastle news, Monday 1930 on 3.583 plus 10 m, 2 m, 70 cm, 23 cm. The broadcast text is available on the Internet newsgroup aus.radio.amateur.misc, and on packet radio. | (F) \$69.00<br>(G) (\$56.00<br>(X) \$41.00                              |
| <b>VK3 Victorian Division</b><br>40G Victoria Boulevard<br>Ashburton VIC 3147<br>Phone 03 9885 9261<br>Fax 03 9885 9298   | President Jim Linton<br>Secretary Barry Wilton<br>Treasurer Rob Hallay<br>(Office hours Tue & Thur 0830-1530)<br>e-mail address: <a href="mailto:vk3wi@rnt.com.au">vk3wi@rnt.com.au</a> | VK3PC<br>VK3XV<br>VK3NC   | VK3BWI broadcasts on the 1st Sunday of the month, starts 10.30 am. Primary frequencies, 3.615 LSB, 7.085 LSB, and FM(R)s VK3RML 146.700, VK3RMM 147.250, VK3RWG 147.225, and 70 cm FM(R)s VK3ROU 438.225, and VK3RMU 438.075. Major news under call VK3WI on Victorian packet BBS and WIA VIC Web Site.  | (F) \$75.00<br>(G) (\$61.00<br>(X) \$47.00                              |
| <b>VK4 Queensland Division</b><br>GPO Box 638<br>Brisbane QLD 4001<br>Phone 07 5496 4714<br>wiaq@brisbane.dialix.com.au   | President Rodger Bingham<br>Secretary Peter Harding<br>Treasurer John Presotto<br>e-mail address:   | VK4HD<br>VK4JPH<br>VK4WX  | 1.825 MHz SSB, 3.605 MHz SSB, 7.118 MHz SSB, 14.342 MHz SSB, 21.175 MHz, 28.400 MHz SSB, 29.220 MHz FM, 53.725 MHz FM, 147.000 MHz FM, 438.500 MHz (Brisbane only), and regional VHF/UHF repeaters at 0900 hrs EAST Sunday. Repeated on 3.605 MHz SSB & 147.000 MHz FM at 1930 hrs EAST Monday. Broadcast news in text form on packet under WIAQ@VKNET.  | (F) \$74.00<br>(G) (\$60.00<br>(X) \$46.00                              |
| <b>VK5 South Australian Division</b><br>34 West Thebarton Rd<br>Thebarton SA 5031<br>(GPO Box 1234<br>Adelaide SA 5001)<br>Phone 08 8352 3428<br>Fax 08 8264 0463 | President Ian Hunt<br>Secretary Graham Wiseman<br>Treasurer Joe Burford   | VK5QX<br>VK5EU<br>VK5UJ   | 1827 kHz AM, 3.550 MHz LSB, 7.095 AM, 14.175 USB, 28.470 USB, 53.100 FM, 147.000 FM Adelaide, 146.700 FM Mid North, 146.800 FM Midura, 146.825 FM Barossa Valley, 146.900 FM South East, 146.925 FM Central North, 147.825 FM Gawler, 438.425 FM Barossa Valley, 438.475 FM Adelaide North, ATVC 35.579 250 Adelaide, (NT) 3.555 USB, 7.065 USB, 10.125 USB, 146.700 FM, 0900 hrs Sunday, 3.585 MHz and 146.675 MHz FM Adelaide, 1930 hrs Monday.  | (F) \$75.00<br>(G) (\$61.00<br>(X) \$47.00                              |
| <b>VK6 West Australian Division</b><br>PO Box 10<br>West Perth WA 6872<br>Phone 08 9351 8873  | President Wally Howse<br>Secretary Christine Bastin<br>Treasurer Bruce Hedland-Thomas   | VK6KZ<br>VK6ZLZ<br>VK6GO  | 146.700 FM(R) Perth, at 0930 hrs Sunday, relayed on 1.825, 3.560, 7.075, 14.116, 14.175, 21.185, 29.680 FM, 50.150 and 438.525 MHz. Country relays 3.582, 147.350(R) Busselton and 146.900(R) Mt William (Bunbury). Broadcast repeated on 146.700 at 1900 hrs Sunday, relayed on 1.865, 3.563 and 438.525 MHz; country relays on 146.350 and 146.900 MHz.  | (F) \$62.00<br>(G) (\$50.00<br>(X) \$34.00                              |
| <b>VK7 Tasmanian Division</b><br>PO Box 271<br>Riverside TAS 7250<br>Phone 03 6327 2096<br>Fax 03 6327 1738   | President Ron Churcher<br>Secretary Barry Hill<br>Treasurer Mike Jenner   | VK7RN<br>VK7BE<br>VK7FB   | 146.700 MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147.000 (VK7TRA), 146.725 (VK7RNE), 146.625 (VK7RMD), 3.570, 7.090, 14.130, 52.100, 144.150 (Hobart), repeated Tues 3.590 at 1930 hrs.   | (F) \$74.00<br>(G) (\$60.00<br>(X) \$46.00                              |
| <b>VK8 Northern Territory</b> (part of the VK5 Division and relays broadcasts from VK5 as shown, received on 14 or 28 MHz).                                       |   |                           | Membership Grades<br>Full (F) Pension (G)<br>Needy (G) Student (S)<br>Non receipt of AR  | Three-year membership available to (F) (G) (X) grades at fee x 3 times. |

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